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ABSTRACT

The present research was conducted to determine the relative importance of a variety of background variables and school effects on curriculum assignment in public high schools. The emphasis was on the sociological processes of selection and differentiation within schools, and the role of education in facilitating or blocking social mobility. A selection of the data from the "Equality of Educational Opportunity Survey" were reanalyzed, to compare both schools and students in the ninth and twelfth grades. The findings were, in general, at odds with much of the polemics of school reform, in which educational institutions are criticized for restricting opportunity to lower class or non-white students. When verbal ability is assumed to adequately differentiate pupils, as a criterion for placement, there is little evidence for discrimination within schools in placement, and no evidence of racial bias. Differences in tested ability accounted for most of the observed segregation within schools by race and class, and, in general, the effects of verbal ability were 3-4 times as important as the combined effects of father's education, occupational prestige, and number of siblings in the family. If more equality of outcomes is desirable, one must question the relevance of tests as a criterion, rather than focusing on schools as agents generating inequality through perpetuating status differentials. (Author)

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CURRICULUM ASSIGNMENT AND TRACKING POLICIES IN FORTY-EIGHT URBAN PUBLIC HIGH SCHOOLS

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AUTHORS' ABSTRACT

The present research was conducted to determine the relative importance of a variety of background variables and school effects on curriculum assignment in public high schools. The emphasis was on the sociological processes of selection and differentiation within schools, and the role of education in facilitating or blocking social mobility. A selection of the data from the Equality of Educational Opportunity Survey were reanalyzed, both to compare schools and students in the 9th and 12th grades.

The methodological techniques utilized enabled one to develope an explicit causal model of the process and to estimate the direct and indirect effects of parental background, race and verbal ability on placement, grades, and aspirations. An analysis of covariance was used to separate the within school effects from processes operating between schools.

The findings were in general at odds with much of the polemics of school reform, in which educational institutions are criticized for restricting opportunity to lower class or non-white students. When verbal ability is assumed to adequately differentiate pupils, as a criteria for placement, there is little evidence for discrimination within schools in placement, and no evidence of racial bias. Differences in tested ability accounted for most of the observed segregation within schools by race and class, and in general the effects of verbal ability were 3-4 times as important as the combined effects of fathers education, occupational prestige, and number of siblings in the family. Including test scores in the equation revised the effects of race on placement, indicating a small but significant advantage for non-white pupils. Such a finding suggests schools may be responding to the higher aspirations of non-whites for college attendance.

The literature on school effects and the distribution of resources between schools has tended to suggest relatively small effects in predicting differential achievement. The distribution of resources within schools is quite difficult to measure, although a strong argument could be made that students in the college preparatory curriculum are more exposed to labs, libraries, better teachers, a more academic orientation, and brighter, more-motivated peers than students in other programs. If such variables influence achievement even slightly, the effects within schools would tend to augment these differences. Students were asked how often they saw counselors, and how much encouragement they received to pursue their education. The strongest relationship between perceived encouragement and number of reported visits to the counselor was the students curriculum. Neither social class nor race contributed much additional explanatory power. While these results are only suggestive, they lend support to the notion that structural differentiation within schools influences the allocation of resources and rewards by assignment. Advantaged pupils would seem to receive somewhat more encouragement and

to have somewhat more access to counselors; however, these resources depend on curriculum assignment, rather than being allocated directly by social class or racial background.

The probability of being placed in a college prep curriculum depends on how large the track is, as well as the individual determinants. The present research concludes that differences between schools are not particularly important, and that most of the variance depends on differences between individuals, rather than schools.

Several alternative models of placement are examined in order to determine how outcomes might change using different criteria. A system which operated entirely meritocratically, in that achievement scores were the only criteria, would result in fewer non-white students in college tracks than at present, and very little redistribution by social class. An "open enrollment" model, which placed all students with college aspirations in the college curriculum would increase the proportion from about 50.2% to 65.1%, but would not substantially alter the composition by social class and race. In general, the policy conclusions resulting from this analysis indicate that educational institutions are utilizing test scores much more than background factors, to differentiate and channel pupils. If more equality of outcomes is desirable, one must question the relevance of tests as a criteria, rather than focusing on schools as agents generating inequality through perpetuating status differentials.

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CHAPTER I

SCHOOLS, GROUPING, AND STRATIFICATION IN URBAN HIGH SCHOOLS

The focus of this study is on the determinants and outcomes of educational grouping in public high schools. The form of grouping to be investigated is the assignment of students to a college preparatory curriculum or an alternative track; particular attention is devoted to the relationships between curriculum, on the one hand, and family background, race and achievement, on the other. The effects of schools on student achievement and assignment probabilities and the implications of differential school policies and resources are also explored. The effects of curriculum assignment on student aspirations and grades are examined, for each of forty-eight high schools in the urban north.

Schooling and Stratification

The framework of the analysis interprets schooling as a fundamental link between background factors and adult

status in the "socio-economic life-cycle"[1] of the individual. The study is conceived as a contribution to research on schools conducted in the past and an elaboration of sociological understanding regarding the educational process. The "basic" model of stratification proposed by Dunca and Blau[2] considers educational attainment as a crucial variable mediating the effects of background factors on individual occupational attainment. In this chapter the relevance of stratification within schools will be reviewed and the rationale and research strategy for the present study discussed. The implications of previous research are assessed, and an overview of the analysis presented.

Schools are institutions which perform a unique function in modern society. Education is both "a symbol of social position and a means by which higher position may be achieved."[3] Public Schools are institutions charged with

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[1]Otis Dudley Duncan, "Discrimination Against Negroes," The Annals, CCCLXXI (May, 1967), 87.

[2]Peter M. Blau and Otis D. Duncan, The American Occupational Structure (New York: John Wiley, 1967), Chapters V and VI.

[3]Howard S. Becker, "Schools and Systems of Stratification," in Education, Economy, and Society, edited by A. H. Halsey, Jean Floud, and C. Arnold Anderson (New York: The Free Press of Glencoe, 1961), p. 93.

providing equal educational opportunity to students, while socializing students and serving as crucial intermediaries in distributing adult roles and status. Nearly half a century ago, Sorokin discussed the central dualism of education.

> Up to the last few years, the school was regarded primarily as an educational institution. Its social function was seen in 'pouring' into a student a definite amount of knowledge and, to some extent, in shaping his behavior. The testing, the selective, and the distributive functions of the school were almost completely overlooked, although these functions of the school are scarcely less important than that of "enlightment" and education. . . . At the present moment it is certain that the school, while being a "training and educational" institution, is primarily a piece of social machinery which tests the abilities of the individuals, which sifts them, selects them, and decides their prospective social position.[4]

The conflict between the democratic mandate of equal educational opportunity and the critical task of student selection and differentiation is intrinsic to the American school system. While "contest mobility"[5] is the American

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[4]Pitirim A. Sorokin, Social and Cultural Mobility (New York: The Free Press of Glencoe, 1964), Chapter IX, p.188.

[5]Ralph H. Turner, "Sponsored and Contest Mobility and the School System," American Sociological Review, Vol. XXV, No. 5 (March, 1960).

norm, schools are delegated with both creating and sponsoring the talent needed for technological development and industrial growth.

Schools are also viewed by educators and laymen alike as a critical means of individual social mobility. The critique of schools is frequently argued from precisely this premise; that is, schools have failed or are failing to equalize life chances for the children of the poor. As Clark argues, "American public schools have become instruments in the blocking of economic mobility and in the intensification of class distinctions rather than fulfilling their historic function of facilitating such mobility."[6] I will argue that the apparent contradiction between studies of social mobility and studies of differential achievement must be viewed in this perspective.

Schooling cannot insure upward mobility, or determine the extent of mobility. Schools must implement the values of the larger society, and select and reward on the basis

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[6]Kenneth B. Clark, "Alternative Public School Systems," Harvard Educational Review, XXXVIII (Winter, 1968), 101.

of achievement. The "amount" of social mobility desirable or possible is not an empirical question, and the observed relationship between background and achievement is not necessarily indicative of a failure by schools. One must question the mechanisms through which the schools select and differentiate students, rather than only the observed outcomes, in order to criticize the process.

The persistence of inequalities in educational outcomes is a necessary but not sufficient cause to argue that schools are in part responsible for perpetuating social class and racial differences in American society. Achievement tests are standardized using national norms, and not a specific subject matter taught in a given school in a particular period of time. They may well measure differences in innate ability more accurately than what is either taught or learned in school. The possibility of cultural bias in all such tests is frequently offered as an alternative to a model of genetic differences;[7] however, if the tests are

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[7]See I. Longe, "Differences on Bias in Tests of Intelligence," in Anne Anastasi (ed.), Testing Problems in Perspective (Washington: American Council on Education, 1966).

measuring individual differences in innate ability, the persistence of racial and social class effects may be due to persistent biological differences, rather than the product of educational opportunities, or discrimination within schools.[8] The degree to which schools alter or effect patterns of achievement is not a relevant question as long as the criteria reflect both scholastic aptitude and scholastic achievement.

Secondly, the relationship between social mobility and education is a complex process, and only partly depends on achievement. Schools certify students through graduation, as well as transfer knowledge, and the effects of staying in school may well be as important as what is learned.[9] Ekland has observed that the "certification," or "sheepskin" effect, may be far more important than differences in school quality.[10] While Hauser has argued

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[8]Otis Dudley Duncan, "Ability and Achievement," Eugenics Quarterly, XV (March, 1968), pp. 1-11.

[9]Robert Mason Hauser, "Family, School, and Neighborhood Factors in Educational Performances in a Metropolitan School System" (unpublished doctoral dissertation, University of Michigan, 1968).

[10]Bruce K. Eckland, "Academic Ability, Higher Education, and Occupational Mobility," American Sociological Review, XXX (October, 1965), pp. 735-46.

that achievement and years of school completed are redundant measures of the schooling process,[11] they are not perfectly correlated. The linkages between achievement and success in later life have not been clearly delineated, and the evidence suggest the relationship is far from perfect.[12] Although grades are important determinants of admission to both college and graduate school, grades and adult achievement are not highly associated. Hoyt concludes a detailed survey of the literature on college grades to later achievement with extensive recommendations for improving the evaluation and selection procedures in higher education, since "present evidence strongly suggests that college grades bear little or no relationship to any measures of adult accomplishment."[13] The most comprehensive treatment of social mobility

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[11]Robert M. Hauser, "Schools and the Stratification Process," American Journal of Sociology, LXXIV, No. 6 (May, 1969), p. 587.

[12]See David E. Lavin, The Prediction of Academic Performance (New York: Russell Sage Foundation, 1965); and Donald P. Hoyt, "The Relationship Between College Grades and Adult Achievement. A Review of the Literature." ACT Research Reports, No. 7, September, 1965; and C. J. Bajema, "Interrelations Among Intellectual Ability, Educational Attainment, and Occupational Achievement." Sociology of Education, XLI (Summer, 1968), pp. 317-319.

[13]Hoyt, p. 45.

to date utilized years of schooling completed as the measure of educational outcome, and found that father's occupational prestige contributed only modestly to the occupational attainment of the son when education was taken into account. The model of the stratification process presented interpreted education as mediating and diminishing the effects of background, and as being the crucial intervening variable in intergenerational transmission of status. Equally important, Duncan and Blau demonstrated that most of the variation in educational attainment must be explained by factors other than status of origin.[14]

The empirical linkages between achievement in school and occupational attainment have not been fully explored both because longitudinal data is sparce, and because few studies have adequately specified which "achievement" variables are important for success. Panel studies attempting to follow students through school have rarely succeeded in accumulating sufficient data on a representative sample of students to justify inferences regarding the process of attainment. Two large longitudinal studies begun

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[14]Blau and Duncan, The American Occupational Structure.

in the early sixties will perhaps rectify the deficiency; however, the data is not as yet complete.[15] Data assimilated by Duncan for illustrative purposes provides an intriguing source of materials, although it does not apply to any particular population with certainty. In general, Duncan found that early intelligence has a large direct effect on educational attainment, after controlling background differences, while intelligence measured later in life has a less direct relationship to occupational success than schooling. Duncan concluded that " . . . ability influences achievement insofar as it is translated into training or skill and is certified by a formal educational system."[16] We cannot ascertain from these relationships, however, to what extent schools perpetuate background differences, or

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[15]See John C. Flanagan, et al., "A Survey and Follow-Up Study of Educational Plans and Decisions in Relation to Aptitude Patterns: Studies of the American High School," Cooperative Research Project Nol 226 (Pittsburgh, Pennsylvania: Project Talent Office, University of Pittsburgh, 1962); and William H. Sewell and Vimal P. Shah, "Socio-economic Status, Intelligence, and the Attainment of Higher Education," Sociology of Education, XL (Winter, 1967), pp. 1-23.

[16]Duncan, "Ability and Achievement," p. 9.

facilitate social mobility, since the basis of selection and evaluation is not questioned. Innumerable studies show that success in school is related to social class background, yet quantifying the mechanisms through which background affects achievement is a large undertaking. As Charters observes,

> To categorize youth according to the social class position of their parents is to order them on the extent of their participation and degree of success in the American educational system. This has been so consistently confirmed by research that it now can be regarded as an empirical law. It appears to hold whether the social class categorization is based upon exhaustive procedures used in Elmtown or upon more casual indicators such as occupation or income level. It seems to hold in any educational institution, public or private, where there is some diversity in social class, including universities, colleges, and teacher-training institutions as well as elementary and secondary schools. Social class position predicts grades, achievement and intelligence test scores, retentions at grade level, course failure, truancy, suspensions from school, high school drop-outs, college plans, and total amounts of formal schooling. It predicts academic honors and awards in the public school, elective school offices, extent of participation in extra-curricular activities and in social affairs sponsored by the school, to say nothing of a variety of indicators of "success" in the formal structure of the student society. . . . The predictions noted above are far from perfect. Inasmuch as social class position rarely accounts for more than half the variance of school "success," the law holds only for differences in group averages, not

for differences in individual success.[17]

The problems of interpreting differential achievement are monumental, and both the importance of background and the importance of residual factors can be overstated. Ultimately, the school system cannot be expected to guarantee equality of educational outcomes when the society cannot guarantee equality of status, and utilizes schooling as a means of elite selection. I shall argue that the process of selection and differentiation is crucial in providing for the translation of intelligence or background status into adult roles and status. The institutional mechanisms through which the sorting and selection occurs can perhaps furnish evidence on how the process operates, and the role played by schools, in either facilitating or hampering mobility. In order to evaluate the "equity" of the process, the criteria of selection and differentiation must be specified, and the degree to which schools meet the criteria can be a basis for evaluating the extent to which schools provide opportunity to all students.

The publication of the Coleman Report generated

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[17] W. W. Charters, Jr., and N. L. Gage, Readings in the Social Psychology of Education (Boston: Allyn and Baron, Inc., 1963), pp. 739-40.

considerable controversy,[18] both because of what it demonstrated and because of what it failed to show. The persistence of racial differences in student achievement was well documented. As Coleman states, "It appears that in some areas of the country, there are experiences over the period of school that seem to widen the gap in achievement between Negroes and whites--while there are in none of the regions, experiences that decrease the difference."[19] The persistence of social class differences in achievement was also noted, and despite the difficulties in inference

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[18] See Samuel Bowles and Henry M. Levin, "The Determinates of Scholastic Achievement - An Appraisal of Some Recent Evidence," Journal of Human Resources, III (Winter, 1968), pp. 3-24; and James Coleman's "Reply to Bowles and Levin," Journal of Human Resources, III (Spring, 1968), pp. 237-46; and John F. Kain and Eric A. Hanushek, "On the Value of Equality of Educational Opportunity as a Guide to Policey" (Discussion Paper No. 36, Program on regional and Urban Economics, Cambridge, Mass.: Harvard University, May, 1968.) Also, Glen C. Cain and Harold W. Watts, "Problems in Making Inferences from the Coleman Report," and Replies - American Sociological Review, April, 1970.

[19] James S. Coleman, et al. Equality of Educational Opportunity, Office of Education, U.S. Department of Health, Education, and Welfare (Washington, D.C.: U. S. Government Printing Office, 1966). This report is hereafter referred to as EEOS.

from cross-sectional data, the popular critique of schools continued.

The single most important contribution of the Report, and also the source of much controversy, was the trivial contribution to achievement differences made by school resources, facilities, or other differences between schools when individual background was controlled. The implications of this finding for both educational research and policy provoked considerable debate both concerning the validity of the analysis, and the efficacy of concentrating on schools in order to equalize achievement diffierentials. Considerable sociological investigation has concentrated on schools, both as learning environments and as institutions for the socialization of the young. The quality of education has often been identified in school studies with the quality of the school.[20] In part such emphasis is pragmatic, since school characteristics are often more amenable to change than student body composition. However, the recent

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[20]For an extensive literature review and references see: Edward L. McDill, Edmund D. Meyers, Jr., and Leo C. Rigoley, "Institutional Effects on the Academic Behavior of High School Students," Sociology of Education, XL (Summer, 1967), pp. 164-182.

empirical literature on schools strongly suggests that the preoccupation with school quality is misplaced, both because the largest proportion of the variance in achievement, however measured, is within schools; and because differences between schools are severely confounded with patterns of socio-economic segregation, or school composition.[21]

The basic point to be argued in the present analysis, however, is that the effects of school resources and facilities operate within schools, as well as between them. To the extent that any resource or facility is differentially allocated within schools, the net effect on student achievement is necessarily underestimated. A chief means,by which education is differentiated in schools, is through tracking and assignment policies. The comprehensive public high school is the norm in American education, "a peculiarly American phenomenon . . . responsible for providing good and appropriate education for all young people within a democratic environment which the American people believe serves the principles they cherish."[22] The manner in which students

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[21] Hauser makes a very similar argument in his article, "Schools and the Stratification Process," in American Journal of Sociology, LXXIV (May, 1969), p. 587.

[22] James Bryant Conant, The Comprehensive High School (New York: McGraw-Hill Book Company, 1967), p. 3.

are channeled and the mechanisms of selection and differentiation are crucial to an understanding of how schools function in the stratification process. The large comprehensive high school typically maintains separate curricula for college-bound, or vocationally-oriented students, who receive quite different educational inputs. If access to better teachers, counseling, and highly motivated, academically-oriented peers affect achievement differentials between schools, the effects operate between curricula, within schools as well. The effects of school resources such as laboratories, or library volumes, are also necessarily understated when only students in academic programs are exposed to them. Inferences on the effects of school resources in a non-experimental study are hazardous,[23] and assessing the importance of differential allocation within schools is not possible with data currently available. The point should be made, however, that the "effects" of resources depend ultimately on who uses them, and not only on which schools have them.

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[23]See William Sewell, "Review," American Sociological Review, XXXII (June, 1967), pp. 475-479; and Robert C. Nichols, "Schools and the Disadvantaged," Science (December 9, 1966), pp. 1312-1314.

Stratification within Schools

The extent of educational grouping and the results and differences are quite relevant to the present study. In elementary schools, ability grouping is a widespread and diverse practice; the extent depends in part on the size and structure of the school, with large, heterogeneous systems reporting the practice more often than smaller schools or districts. Age grading, for example, is a nearly universal form of grouping, and ability grouping frequently is both between and within classrooms. Data collected by the National Education Association estimated that in school districts enrolling over 300 pupils, 27.5% of all districts carefully grouped all pupils between classrooms, while 24.9% reported random grouping.[24] The remainder grouped only some children or did not report (4.4%). The same survey also indicated that grouping was much more widespread at the secondary level, with 85.4% of the schools reporting ability grouping. It is also true that grouping between schools exists at the secondary level, and that most American schools offer a

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[24]National Education Association, Research Division Ability Grouping, Research Summary, 1968-S3, Washington, D.C.

differentiated curriculum which may not be construed as grouping.

Although such statistics probably underestimate the degree to which schools differentiate pupils by ability for educational purposes, they give an indication of the scope of the practice in American schools. Of those school districts which in 1962 had limited provisions, 60.1% of the secondary schools were expanding the service while only 9 districts or .2% of the sample were curtailing grouping.[25] National statistics on the criteria used to group students is not readily available; for elementary schools, 88% of the districts reported using reading scores, and 72% standardized achievement tests, with 81% reporting teacher's recommendations were also used. Other criteria mentioned included other aptitude tests, grades, social maturity, or parental desires. The larger the system, the more likely was the district to report using tested ability as a criterion of grouping. No comparable data exist for secondary schools, although the student's desires no doubt affect the curriculum

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[25]National Education Association, Research Division, Administrative Practices in Urban School District, 1958-59. Research Report 1961-R10, Washington, D.C.

assignment of the pupil, if not ability group placement.

The extent of grouping and the criterion used to group pupils as well as the research results of studies of grouping are particularly rlevant to issues in tracking. The literature of the effects of ability grouping is voluminous, but quite contradictory. Early studies in ability grouping utilized the non-experimental approach, often matching students after grouping by intelligence or background. The results often favored ability grouping, but then so did the researchers, and often quite explicitly. An early research summary by Billett[26] reviewed 140 studies published between 1910 and 1928; 108 of these he classified as "experimental or practical" with the following distribution of results:

TABLE 1

DISTRIBUTION OF RESEARCH RESULTS FROM EARLY EXPERIMENTAL STUDIES OF ABILITY GROUPING

	Grouping Favorable	Grouping Detrimental	Doubtful	Total
Uncontrolled	88	4	10	102
Partly Controlled	1	0	1	2
Thoroughly Controlled	2	1	1	4

[26]Roy O. Billett, The Administration and Supervision of Homogeneous Grouping (Columbus: Ohio State University Press, 1932).

Ruth Ekstrom surveyed the literature and found:

> 13 studies which found differences, having or approaching significance, favoring homogeneous grouping; fifteen studies which found no differences in achievement in homogeneous or heterogeneous groups, or which found homogeneous grouping detrimental; and five studies which gave mixed results, partially favorable and partially unfavorable to homogeneous grouping.[27]

In 1968, the National Education Asscciation[28] reviewed the most recent literature and summarized the fifty best controlled studies published since 1960. Their results are as follows:

TABLE 2

RESULT OF ABILITY GROUPING, 1960 - 1968

Ability Level of Students	Favorable	Detrimental or Insignificant	Mixed	Total
Academically Talented	18	17	11	46
Average	11	10	12	33
Slow	12	17	10	39

[27] Ruth B. Ekstrom, Experimental Studies of Homogeneous Grouping (Princeton, New Jersey: Educational Testing Service, 1959).

[28] National Education Association, Ability Grouping, p. 42.

While most studies concentrated on achievement differentials, other attributes have also been explored, such as self-concepts,[29] need-achievement,[30] feelings of self-worth,[31] and friendship choices,[32] and teacher-relations.[33] Generalizations are virtually impossible to make from this literature, since so few studies utilized comparable measures or controls and since very few have been successfully replicated.

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[29]Martin C. Olavarri, "Some Relationships of Ability Grouping to Student Self-Concept" (unpublished dissertation, Berkeley, University of California, 1967). Abstracts 28:2518A.

[30]John W. Atkinson, and Patricia O'Connor, Effects of Ability Grouping in Schools Related to Individual Differences in Achievement Related Motiviation. U.S.Department of Health, Education, and Welfare, Office of Education, Cooperative Research Project No. 1283 (Ann Arbor: University of Michigan, 1963).

[31]Ernest Dyson, "A Study of the Relationships Between Acceptance of Self, Academic Self-Concept, and Grouping" (Philadelphia: Temple University, 1965). Dissertation Abstracts 26, September 1965, pp. 1475-76.

[32]Francis R. Deitrich, "Comparison of Sociometric Patterns of Sixth Grade Pupils in Two School Systems: Ability Grouping Compared with Heterogeneous Grouping," Journal of Educational Research, LVII (July-August, 1946), 507-13.

[33]Wayne William Fick, "The Effectiveness of Ability Grouping in Seventh Grade Core Classes" (Lawrence: University of Kansas, 1962.) Abstract: Dissertation Abstracts 23:2753-54; February, 1963.

The most comprehensive study of ability grouping yet undertaken concentrated on sixth grade New York children, and the following generalization was made:

> The general conclusion which must be drawn from the findings of this study and from other experimental grouping studies is that, in predominately middle-class schools, narrowing the ability range in the classroom on the basis of some measure of general academic aptitude will, by itself, in the absence of carefully planned adaptations of content and method, produce little positive change in the academic achievement of pupils at any ability level.[34]

The findings of the experimental studies are not directly relevant to the present study, and an exhaustive review of the literature will not be attempted. The relationship between research and educational practice is quite tenuous, since despite the general lack of favorable results reported, grouping at all levels is increasingly found. The paradox is perhaps partially explained by teachers preferences. In 1960, the National Education Association polled a nation-wide sample of teachers, and reported that 87.3% of secondary school teachers favored grouping, 8.6% opposed,

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[34]Miriam L. Goldberg, A. Harry Passow, and Joseph Justman, The Effects of Ability Grouping (New York: Teachers College, Columbia University, 1966), p. 167.

and 4.1% had no opinion.[35]

Sociologically, the experimental literature is peripheral largely because the studies artificially grouped pupils. The focus was on the differential attainment levels of pupils when grouping was done experimentally, and not on how schools actually grouped pupils. While grouping has not been shown to effect students detrimentally or positively, little attention was focused on the actual outcomes of grouping in practice.

Sociological research relevant to grouping practices can be found in the early stratification studies on communities such as Warner's Yankee City (1941), in Deep South (1941) by Davis and Gardner, and in Hollingshead's Elmtown (1949). These classic studies were basically descriptive and relied upon the observations of informants as well as colleagues; while they provide a wealth of propositions and insights, the early studies were generally premised on assumptions about the stratification system which may be untenable in a more complex environment. A highly relevant summary of early findings on the role of the school system in Yankee City, Old City, and Hometown can be found in Who Shall Be

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[35] National Education Association, Research Division, "Teacher Opinion Poll: Ability Grouping," NEA Journal, LVII (February, 1968), 53.

Educated? by Warner, Havighurst, and Loeb. Warner argues that " . . . the social class of a pupil and his family has considerable influence in the choice of high school curriculum," and that "the tendency for social class standards to overrule ability leads to a good deal of reshuffling or attempted reshuffling by the high school teachers."[36] In an era in which educators overwhelmingly endorse universalistic standards, it seems most pertinent to inquire how well schools carry out the mandate of equal educational opportunity. Cicourel and Kitsuse (1963) studied Lakeshore High School, a large suburban school with strongly academic standards, and concluded that

> . . . administrative decisions are crucial for the process by which students are qualified for college entrance. These decisions may be independent of the students' college-going aspirations, and they significantly control the flow of students through the several curricula of the High School.[37]

Such assertions require broader support and more precise quantification than can be provided by case studies, however

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[36]W. Lloyd Warner, Robert J. Havighurst, and Martin B. Loe, Who Shall Be Educated? (New York: Harper and Brothers, 1944), p. 64.

[37]Aaron V. Cicourel, and John I. Kitsuse, The Educational Decision-Makers (New York: The Bobbs-Merrill Company, Inc,, 1963), p. 23.

provocative the results. Arthur Stinchombe studied the relationships between track placement and rebellion in a small Western High School.[38] Although he could not control for intelligence, he found track placement related to deviant behavior after controlling for social class. The interpretation offered was that the student had no vested interest in the school, and rebelled to show resentment.

Theoretically, the process of stratification in schools closely resembles that in the society at large. Assignment to a curriculum represents the schools evaluation of the student's potential as well as effecting his chances of continuing his education. Data collected by Project Talent in 1960[39] of the high school seniors indicated that 76.4% of the students in the college prep track began college the following fall, while only 15.2% of those in another curriculum did so. Tracking can be viewed as a form of segregation by social class and race within schools,

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[38]Arthur I. Stinchombe, Rebellion in a High School (Chicago: Quadrangle Books, 1964).

[39]John C. Flanagan and William W. Cooley, Project Talent: One-Year Follow-Up Studies. U.S.Department of Health, Education, and Welfare, Office of Education, Cooperative Research Project No. 2333 (Pittsburgh, Penna: University of Pittsburgh, 1966).

reinforcing and augmenting segreation between schools. The degree of bias in assignment and the determinates of placement are critical to our understanding of the mechanisms of selection and differentiation present in schools. While a stated objective of grouping is to distinguish ability and provide individual attention, it is necessary to assess how adequately schools perform this task. The criticism of schools as impeding social mobility cannot be based on the persistence of achievement differentials alone; if schools discriminate by social class or race when ability level is controlled, the case against schools is more compelling. The present study is concerned with the process and determinates of curriculum assignments in forty-eight comprehensive public high schools. A model of the process of stratification within schools will be presented, and elaborated to include grades, and aspirations, as well as background factors and achievement. The prime objective is assessing the relative importance of social class and race in placement.

An Overview

In the following chapter, the sample analyzed is

described and comparisons are made between the forty-eight schools selected and the complete Equality of Educational Opportunity Survey, as well as census publications. The basic model and methodological justification is presented in Chapter III. Chapter IV presents the results of the analysis regarding social class and curriculum assignment in the forty-eight schools. The results obtained from pooling the entire sample, confounding within and between school effects, will be compared to results obtained from the within school model, and results obtained when the coefficients are averaged across separate equations computed for each school. The magnitude of interactions is explored, and several explanatory variables are introduced to explain the observed interactions. In Chapter V the relationship between race and curriculum assignment is explored. The analysis by race was restricted to fifteen high schools which reported a non-white enrollment exceeding 10% of the total school. An essentially comparable analysis of interactions observed is reported. In Chapter VI, the relationship between curriculum assignment and access to counselors is explored. The amount of encouragement a student receives from counselors is related to track placement, ability and

background factors. Counseling is the only variable available in the present study to compare the differential allocation of a school resource between tracks. Chapter VII explores the determinants of placement between schools, and attempts to relate structural variables, such as size and composition to differences in policies. The effects of schools on assignment are decomposed, to assess the importance of composition and context in assignment. Chapter VIII presents the summary and conclusions of the present analysis, as well as drawing possible policy implications of the research.

CHAPTER II

THE SAMPLE AND THE DATA

The present chapter shall focus on the units of analysis and the comparability of results with other studies. Particular attention is devoted to comparing the student distribution by class and race.

The Sample

The data for this analysis was a sample of high schools selected from the Equality of Educational Opportunity Survey conducted in the early fall of 1965. The Survey represents the most massive canvass of students and schools ever attempted in the United States, including data on more than 645,000 pupils in grades one through twelve.[1] The original sample design consisted of a stratified, two-stage probability sample; the primary units for the first stage were counties, stratified by region and metropolitan location. The sampling ratios for the second stage were

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[1] See Coleman, et al. EEOS for details of the Congressional mandate.

counties, stratified by region and metropolitan location. The sample ratios for the second stage were established according to the proportion of non-white students within the urban and regional units, since the number of non-white students to be included had been set at 450,000. The largest 21 metropolitan areas were included with a probability of 1.00, while the remaining units were randomly selected. Within each county and metropolitan area, a complete list of all public secondary schools was obtained from the State Departments of Education with non-white enrollment in each school indicated. The secondary schools were then stratified into five groups depending on the racial composition of the student body, and from each of the strata defined by region, metropolitan location, and racial composition. Students in the lower grades were included if they were identified as feeder schools to the high school selected. All questionnaires and test instruments were mailed; the principal, superintendent, and teacher forms were self-administered, while the teaching staff was asked to test every student in the school. No information is available on the adequacy or comparability of test conditions, administration, timing, or biases due to absenteeism. It can be expected that such

differences influence the quality of the data.

The procedure has been detailed because despite the careful planning and execution, the data collected have been criticized as being inadequate and not representative.[2] The major reason for such criticisms is the non-response rate within sampled units; and the decision of several large metropolitan districts, such as Los Angeles, Chicago, Boston and Columbus, not to participate. The original sample consisted of 1,170 high schools, but only 818 or 70% returned usable principal questionnaires and 67% or 780 schools returned pupil data.[3] There were, in the final sample, 689 schools which included both principal and student data. Table 3 outlines the composition of schools in the original sample and the number responding.

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[2]See Samuel Bowles and Henry M. Levin, "The Determinates of Scholastic Achievement - An Appraisal of Some Recent Evidence," Journal of Human Resources, III (Winter, 1968), pp. 3-24; and James Coleman's "Reply to Bowles and Levin," Journal of Human Resources, III (Spring, 1968), pp. 237-46; and John F. Kain and Eric A. Hanushek, "On the Value of Equality of Educational Opportunity as a Guide to Policy," Discussion Paper No. 36, Program on Regional and Urban Economics (Cambridge, Mass.: Harvard University, 1968). Also Glen C. Cain and Harold W. Watts, "Problems in Making Inferences from the Coleman Report." and Replies, American Sociological Review, XXXV (April, 1970), p. 228.

[3]EEOS, p. 565.

TABLE 3

NUMBER OF HIGH SCHOOLS IN ORIGINAL EQUALITY OF EDUCATIONAL OPPORTUNITY SURVEY BY LOCATION AND RACIAL COMPOSITION (RESPONSE RATE)

	0-10%	10-25%	25-50%
United States	337 (.65)	69 (.77)	52 (.73)
Non-Metropolitan	223 (.63)	43 (.84)	28 (.76)
North and West	78 (.81)	27 (.90)	22 (.76)
South	118 (.56)	6 (1.00)	1 (1.00)
Southwest	27 (.59)	10 (.67)	5 (.71)
Metropolitan	114 (.70)	26 (.68)	24 (.71)
Northeast	44 (.88)	8 (.67)	15 (.79)
Midwest	30 (.67)	6 (.43)	4 (.44)
Southeast	18 (.53)	1 (1.00)	----
Southwest	11 (.69)	3 (1.00)	2 (1.00)
West	11 (.65)	8 (1.00)	3 (.75)

Source: EEOS, Table 9, 6, 3, p.567.

TABLE 3--Continued

	50-75%	75-100%	Total
	17 (.68)	305 (.65)	780 (.67)
	4 (.67)	239 (.64)	537 (.65)
	3 (.60)	21 (.88)	150 (.82)
	----	177 (.60)	302 (.59)
	1 (1.00)	41 (.73)	85 (.68)
	13 (.68)	66 (.69)	243 (.70)
	6 (.75)	7 (.88)	80 (.82)
	6 (.75)	6 (.67)	52 (.61)
	----	35 (.65)	54 (.61)
	----	15 (.75)	31 (.74)
	1 (.50)	3 (.60)	26 (.72)

The objective of the present study was to assess both the determinants of tracking on the individual level and the process of grouping as a phenomenon associated with schools. Since utilizing all of the available data for high school students would have involved exhorbitant computer costs, it was necessary to sample. The procedure Coleman utilized was to select 1,000 students randomly from each grade level for extensive analysis, and to weigh them by the sampling ratios of the appropriate strata. The present research design entailed both school and individual-level analysis, so it was decided to select schools and include all students from those high schools selected. The criteria used to select schools for analysis was somewhat arbitrary in that it was not random; the purpose was to obtain a structurally homogeneous sample of schools with data from both principals and pupils, in order to be able to compare policies across schools. More than two thirds of the schools in the Equality of Education data bank were located outside of Standard Metropolitan areas. These rural schools were considerably smaller than the average urban school, and more likely to have only one curriculum. The decision was made to limit the analysis to urban schools, following

Coleman's definition of urban. The second criteria used was structural. Even in the urban sample, schools differed considerably in grade composition; many smaller schools included all twelve grades while larger districts maintained both junior and senior high schools. Initial analysis showed that an important determinant of tracking and grouping policies was the size and grade composition of the school, which confirmed other data sources. Schools which had a limited total enrollment or a small number of students in any single grade were more likely not to track all students. Since it was desirable to have data on two different grade levels in the same school, senior high schools which did not include ninth grades were eliminated from the analysis. Schools which included grades below the ninth were also eliminated. The reason for this was that the principals' responses to questions of policy, or concerning facilities and teachers in schools which included lower grades would not refer to high school students equally. Ten high schools which the principal reported were vocational schools or schools enrolling slow learners were also omitted. The resulting sample consisted of 80 urban four-year high schools, with a comprehensive curriculum which had

principals' data. Twenty-one of these schools were missing data on either the ninth or twelfth graders,[4] and so they were also excluded. Table 2 gives the region and racial composition of the 60 selected schools and a similar breakdown for all the urban schools in the complete survey. The twelve Southern schools were also omitted from the final analysis, although initially we considered treating them separately.

An analysis of the possible biases introduced by limiting the schools to four-year high schools was attempted. The Office of Education reported that roughly one fourth of all public high schools were four-year, 9-12 schools. In the Equality of Educational Opportunity Survey, 207 of the total 818 principals reported this grade composition. In the urban sample, one third of the high schools originally sampled had this grade composition. A comparison of the distribution of all high schools and four-year high schools in the Survey showed no differences in location, class of

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[4]Thirteen schools were missing data on both 9th and 12th grades; five schools lacked 12th grade data and three schools had no ninth grade data.

TABLE 4

METROPOLITAN HIGH SCHOOLS BY REGION AND RACIAL COMPOSITION
IN ORIGINAL SAMPLE AND IN 9-12 SUBSAMPLE*

	TOTAL METROPOLITAN SAMPLE						FOUR YEAR HIGH SCHOOL					
	0-10	10-25	25-50	50-75	75-100	Total	0-10	10-25	25-50	50-75	75-100	Total
Northeast	44	8	15	6	7	80	12 (2)	1 (2)	4	1	- (2)	18 (6)
Midwest	30	6	4	6	6	52	12 (2)	3 (3)	2 (2)	2 (1)	3 (1)	22 (9)
Southeast	18	1	-	-	35	54	4 (1)	-	-	-	5 (1)	9 (2)
Southwest	11	3	2	-	15	31	1 (1)	1	-	-	1	3 (1)
West	11	8	3	1	3	26	4 (2)	2	2	-	0 (1)	8 (3)
TOTAL	114	26	24	13	66	243	33 (8)	7 (5)	8 (2)	3 (1)	9 (5)	60 (21)

*Note: Schools with missing pupil data are presented in parenthesis.

pupils served, or racial composition. The schools selected were, however, somewhat larger, employed more teachers, were somewhat more likely to have full-time guidance counselors, accelerated curriculums, and to track all students. These differences were not unexpected, given the selection criteria, and it is not clear how important they are in the analysis. If the original sample had been strictly random, a random selection procedure would have enabled one to generalize to all high schools, or to all schools of a certain type. Since it seems difficult to argue that the sample is representative of any particular universe of schools, the decision was made to analyze the selected 48 schools separately, and ignore the sampling quotas and weights assigned by the Survey staff. The forty-eight schools represent twenty-seven different standard metropolitan areas in seventeen states or the District of Columbia.

Table 5 lists the urban areas included with the number of schools and students included. It should be pointed out that the schools are not necessarily representative of the region, state, or metropolitan area in which they are located. The analysis of differences between schools, despite variability in many school characteristics,

TABLE 5

SCHOOLS SELECTED FOR ANALYSIS BY METROPOLITAN LOCATION, AND SIZE OF SAMPLE

School Location	No. of Schools	Students Sampled	
		9th	12th
NEW ENGLAND			
Portland, Maine	1	240	222
Boston, Mass.	2	492	425
Fall River, Mass.	1	480	300
MID-ATLANTIC			
Baltimore, Md.	1	63	423
Atlantic City, N.J.	1	756	602
Newark, N.J.	2	689	577
Trenton, N.J.	1	219	137
Wilmington, N.J.	1	255	192
Buffalo, N.Y.	2	635	585
New York City	3	852	2,086
Philadelphia, Penn.	1	539	531
Scranton, Penn.	1	252	461
Washington, D.C.	1	528	392
GREAT LAKES			
Chicago, Ill.	1	83	76
Peoria, Ill.	3	849	645
Evansville, Ind.	5	1,917	1,477
Detroit, Mich.	1	105	360
Canton, Ohio	1	624	470
Cincinnati, Ohio	1	121	52
Green Bay, Wis.	1	187	148
Milwaukee, Wis.	5	1,257	1,081
PLAINS			
St. Louis, Mo.	3	1,186	793
Omaha, Neb.	1	212	580

TABLE 5--Continued

School Location	No. of Schools	Students Sampled	
		9th	12th
FAR WEST			
Bakersfield, Calif.	4	2,137	1,676
Sacramento, Calif.	2	838	1,039
San Francisco, Calif.	1	312	227
Portland, Oregon	1	66	63
TOTAL SAMPLE SIZE	48	15,894	15,384

revealed considerable uniformity in outcomes among students. It seems safe to argue that the selected schools represent a cross-section of four-year urban high schools located outside the South, with an over-representation of schools in which non-white students were enrolled. The following section compares the distribution of students to census publications.

The Student Data

The student data analyzed represents the total number of students in the forty-eight high schools selected, or over 30,000 cases. It is pertinent to inquire how representative these students are of all high school students in northern, public high schools. As discussed earlier, the racial composition of the sample can be expected to differ from the total population, since schools were selected differentially according to racial composition for the Equality of Educational Opportunity Survey. We cannot compare the distribution of schools or characteristics, since relevant comparative information is not available. Census data has been compiled, however, which allow us to make a few comparisons. To my knowledge, no rigorous

comparison has been made between the distribution of respondents in the EEO Survey with a national reference group.

Table 6 presents the percentage distribution of respondents by race and sex in the forty-eight schools, and a comparable distribution compiled from census data on school enrollment. The tabulations compiled from the Survey represent the total distribution of both ninth and twelth graders pooled. The most comparable census figures available were chosen, although they do not reflect a strictly comparable population. The census figures refer to school enrollment in fall of 1967, not 1965; detailed figures were not available for the earlier year. The census figures are for the total population in a standard metropolitan statistical area of 250,000 or more, for the entire country, including the South, enrolled in a public high school in grades nine through twelve. The metropolitan regions chosen for analysis from the EEO Survey may differ from the national total, and we do not have information on tenth or eleventh grade pupils. The comparisons are, therefore, merely suggestive of differences. The present sample includes approximately twelve percent more non-white students than one would

TABLE 6

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY SEX AND RACE FOR SUBSAMPLE AND FOR CENSUS TABULATIONS ON SCHOOL ENROLLMENT IN GRADES NINE THROUGH TWELVE, OCTOBER 1967

Sex and Race	EEOS Sub-sample	Census Tabulation*
White	71.6	83.6
male	35.3	43.0
female	36.3	40.6
Non-White	28.4	16.4
male	13.8	8.2
female	14.6	8.2

*Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-20, No. 190, "School Enrollment." U.S. Government Printing Office, Washington, D.C.,1969. Compiled from Table 12, pp. 29-31.

expect randomly, and an excess of females slightly over two per cent. The racial differences were expected, while the sex difference is less easily explained. It is possible that differential absenteeism, or excessive unuseable instruments returned by males account for the observed difference in sex ratio.

Table 7 presents a similar comparison of enrollment data with tabulations from the census. The distributions are non-comparable in population base for the reasons cited above. Additionally,the census figures include rural areas, and are only compiled for dependent children in primary families; the EEOS tabluation is based on the educational attainment of fathers, not head of household.

It is apparent from Table 7 that the students sampled reported slightly more years of school completed than the census would suggest was accurate. The difference is no doubt partially accounted for by including the South and rural areas, particularly for non-whites. However, it is also probable that students over-estimated the education of their fathers. The concentration of responses in the category high school graduate is particularly suspect, and the differences between the census figures and survey are probably due to response error.

TABLE 7

PERCENTAGE DISTRIBUTION OF FATHER'S EDUCATION BY RACE,
BY CENSUS* AND EEO SURVEY RESULTS

Years of School Completed by Head of Household	WHITE		NON-WHITE		TOTAL	
	EEOS Subsample	Census*	EEOS Subsample	Census	EEOS Subsample	Census
Elementary, 0-4 yrs.	7.0	2.2	16.6	11.3	6.8	3.4
5-7 yrs.		7.2		22.3		9.2
8 yrs.	11.7	12.1	14.3	14.0	9.9	12.4
High School:						
1-3 yrs.	21.3	20.0	24.4	23.9	20.7	20.5
4 yrs.	35.2	32.5	30.2	17.3	37.5	30.4
College:						
1-3 yrs.	9.3	10.1	5.6	3.7	9.2	9.3
4 yrs. or more	15.5	15.9	8.8	7.6	15.9	14.8
TOTAL	100.0	100.0	99.9	100.1	100.0	100.0

*Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-20, No. 190, "School Enrollment." U.S. Government Printing Office, Washington, D.C.,1969. Compiled from Table 12, pp. 29-31.

These differences, although crude at best, are instructive both to assess how adequately th4 30,000 students analyzed are representative of the nation, and to estimate the degree and direction of misreporting. The reliability of the data is discussed in more detail in the Appendix. The distributions presented suggest that the present schools are atypical with respect to race, although the composition within racial categories probably reflect roughly the extent of individual differences. The distributions also suggest that misreporting is a significant source of error in addition to non-response.

CHAPTER III

THE BASIC MODEL OF WITHIN SCHOOL STRATIFICATION

The theoretical orientation of the present analysis is an explicit formalization of the process of stratification within schools, and the determinants of placement. The present chapter will focus on the substantive and empirical justification of the model presented, and describe the variables chosen for analysis. The techniques of analysis used will be reviewed and the postulated model presented; the implications of the causal assumptions employed will be examined.

The substantive assumption embodied in the analysis is that social stratification in high schools replicates and reinforces the stratification system of the larger society. The focus is on the institutional mechanisms which channel students into adult roles, rather than on the status system within schools; no attempt will be made to formulate or define what constitutes social status among students in the high school or adolescent peer culture.[1] The high school

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[1] In contrast to such work as James Coleman, The Adolescent Society (New York: The Free Press, 1961).

is viewed as an institution which selects, differentiates, and socializes pupils for positions of relative status in the larger society.

The mechanism of selection of present concern is the assignment of pupils to a college preparatory curricula. The educational differentiation implicit in placement serves to stratify and segregate students within schools, just as occupational status later reinforces social barriers. Assignment to a college curriculum is strongly related to actual college attendance, both because the academic track prepares students to meet college admissions requirements, and provides encouragement and reinforcement from teachers, peers, and counselors for college aspirations. Placement may also be a source of some prestige. If the educational system functions both as the institutional means for social mobility and means of elite selection, it is pertinent to inquire into the mechanisms at work within schools.

The process of selection and stratification can be approached from two perspectives. Descriptively, one can assess the determinants of placement in a social system as a product of mechanisms operating within that system. An evaluation or critique of these mechanisms, however, requires

a comparative framework, whether the focus is on the normative functioning of the process, or on the effects produced. The dynamics of occupational mobility in a social structure are logically distinct from a critique of the process, although the latter presupposes a knowledge of the former. The relative importance of ascription or achievement, for example, can be analyzed without reference to evaluative concerns. The implications of the postulated model of within school stratification are great for both social and educational policy; however, the analysis is basically descriptive, rather than evaluative.

The process is not, quite obviously, independent of student desires. In the present sample of students, eighty-four per cent of the twelfth grade students stated that the curriculum to which they were assigned was of their own choice. While this perhaps overestimates the degree of choice actually present, schools may serve merely to instrumentalize ambitions. The choice of an occupation also reflects individual volitions, as constrained by the demands and opportunities of a labor market. The determinants of assignment in the present framework reflect the descriptive operation of a social system, which can help or hinder the

individual student, rather than a disgression into evaluation. The critique of stratification in a social system necessarily depends on comparison, whether with a real or ideal alternative. A critique of curriculum structures could be based on either the determinants of placement or the outcomes produced. One might criticize the criteria and values prevalent or the societal consequences of segregation by ability. However, it seems virtually impossible to deal with such questions without implicit value judgements and speculation. The implications of the research for social and educational policy are postponed until the final chapter, where the discussion will involve an explicit comparison of alternatives.

The Variables

The variables chosen for analysis reflect the substantive issues involved in the analysis. The determinants of placement in a college curriculum are presumed to be the student's background and his ability level. The three measures of student background chosen were: (1) the educational attainment of his father, (2) the father's occupational prestige, and (3) the number of siblings present in

the family. The survey asked students the following questions which were coded as indicated below.

SURVEY QUESTION	CODED
1. How far in school did your father go?	
(A) None, or some grade school	4
(B) Completed grade school	8
(C) Some high school, but did not graduate	10
(D) Graduated from high school	12
(E) Vocational or business school after high school	13
(F) Some college, but did not graduate	14
(G) Graduated from four-year	16
(H) Attended graduate or professional school	18
(I) I don't know	-
2. What work does your father do? You probably will not find his exact job listed, but check the one that comes closest. If he is now out of work or if he's retired, mark the one that he usually did. Mark only his main job if he works on more than one.	
(A) Technical--such as draftsman, surveyor, medical or dental technician, etc.	76

SURVEY QUESTION	CODED
(B) Official--such as manufacturer, officer in a large company, banker, government official or inspector, etc.	77
(C) Manager--such as sales manager, store manager, office manager, factory supervisor, etc.	
Proprietor or owner--such as owner of a small business, wholesaler, retailer, contractor, restaurant owner, etc.	69
(D) Semi-skilled worker--such as a factory machine operator, bus or cab driver, meat cutter, etc.	
Clerical worker--such as bankteller, bookkeeper, sales clerk, office clerk, mail carrier, messenger, etc.	
Service worker--such as barber, waiter,etc.	
Protective worker--such as policeman, detective, sheriff, fireman, etc.	50
(E) Salesman--such as real estate or insurance salesman, factory representative, etc.	75
(F) Farm or ranch manager or owner	47
(G) Farm worker on one or more than one farm	17
(H) Workman or laborer--such as factory or mine worker, fisherman, filling station attendant, longshoreman,etc.	31
(I) Professional--such as accountant,artist, clergyman, dentist, doctor, engineer, lawyer, librarian, scientist, college professor, social worker, etc.	89

SURVEY QUESTION	CODED
(J) Skilled worker or foreman--such as baker, carpenter, electrician, enlisted man in the armed forces, mechanic, plumber, plasterer, tailor, foreman in a factory or mine, etc.	44
(K) Don't know	33

3. How many brothers and sisters do you have altogether? Include stepbrothers and stepsisters and half brothers and half sisters, if any.

(A) None	0
(B) 1	1
(C) 2	2
(D) 3	3
(E) 4	4
(F) 5	5
(G) 6	6
(H) 7	7
(I) 8	8
(J) 9 or more	9

The educational attainment of father, and the number of siblings present were coded as actual values in years of school or numbers of children as indicated. Coding the occupational categories was problematic, both because the original survey

asked students to respond to census categories representing father's occupation and because the survey miscoded responses in one case, grouping responses of "clerical workers" with those of "service" and "semi-skilled" workers. The low overall response rate is perhaps indicative of the confusion students experienced in responding with occupational category. Initially, the occupational categories were coded utilizing Duncan's occupational prestige scale;[2] however, in view of the low response rate and the unsatisfactory coding scheme adopted by the Report, it was felt an internally consistent scale would be preferable. The original Duncan scale was constructed by regressing the prestige scores of occupational categories on the educational attainment and income of persons in occupational categories. Since income was not asked in the survey, only the distribution of responses to educational attainment by occupation were obtained. For each occupational category, the proportion of students who stated that their fathers had graduated from high school or higher education was calculated, and used to

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[2]Otis D. Duncan, "A Socioeconomic Index for All Occupations," in Occupations and Social Status, ed., Albert J. Reiss (New York: The Free Press, 1965).

code occupations.

If possible, it would have been more desirable to include the proportion earning incomes above $3,5000 as well, and to have calculated a code based on both values weighted by the multiple regression coefficients presented by Duncan. However, the data was not available, and it is doubtful that the resulting scale would have altered the results. The actual scale derived in this manner ranged from 17 to 89; the product moment correlation with the original occupational prestige scale assigned to individuals in the sample scale was .93, indicating substantial agreement with the original scale. The status of farm managers seems relatively more advantaged than expected; since the present sample consisted of urban students, the occupation of farmer is no doubt quite atypical of all farmers, and represents only a faction of the entire sample.

The rationale for utilizing such a scale was twofold. First, it allowed an internally consistent code to be attributed to non-respondents, who were a sizeable fraction of the population studied. Secondly,it accounted for 86.5 per cent of the variance between occupational categories which would have been obtained had the more widely used

prestige scale been adopted. A complete analysis of the properties of this scale was not undertaken, both because it was chosen and justified on pragmatic grounds, rather than for theoretical considerations, and because it reflects the distribution of responses in the present sample, rather than in a random sample of adults. The methodology of occupational prestige scales has been well developed elsewhere,[3] but perhaps two points should be made. First, although the codes are based on educational attainment, they are derived from aggregate data, based on all students in each occupational category, and then applied as scores representing individuals. The logic is that the scores represent the educational attainment of the members of a particular occupational category, rather than properties of individuals. The present scale is,not surpringly, correlated more highly with educational attainment than the occupational prestige scale; in general, the correlations obtained with other variables analyzed were larger in every

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[3]See Robert W. Hodge, Paul M. Siegal, and Peter H. Rossi, "Occupational Prestige in the United States: 1925-1963," American Journal of Sociology, LXX (November, 1964), pp. 286-302.

case. This would seem to be the result of the improved reliability of the scale. If many students were unsure of the precise occupational category which was relevant, the responses may represent a subjective approximation to the father's actual occupation. The scale thus reflects the average educational attainment attributed to the category, which could be considered the perceived status of the occupation by students in this sample.

The measure of verbal ability chosen was the student's actual score on the verbal achievement test administered in conjunction with the Equality of Educational Opportunity Survey. The reliability of this test score was estimated by the Educational Testing Service in Princeton as .92.[4] For most of the analyses presented by Coleman, this text was selected as the most representative of differences in individual ability and as the most reliable of the four tests in the complete battery. The high reliability of verbal achievement was the principal reason for its selection. Secondly,

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[4]James S. Coleman, et al., EEOS,.

studies of educational achievement have often concentrated on verbal skills, rather than more specific abilities. In order to compare results presently compiled with other studies, the analysis was restricted to the verbal achievement score of pupils.

Grades and curriculum in the present analysis are self-reported responses. Grades refer to the average high school grades achieved in all courses during high school, coded on a five point scale. The question regarding curriculum was collapsed into two categories: those students currently enrolled in a college preparatory curriculum, and all others who responded to a particular curriculum.

Aspirations in the present analysis refer to educational aspirations of students, coded as the actual number of years of schooling aspired to by students.

The total number of 12th grade respondents and the response rate for each question are given in Table 6.

No extensive analysis of non-linearity of variables was undertaken; the variables analyzed have frequently been used in social science research, and transforming values would have made comparison difficult. The dependent variable, college curriculum placement, is coded as a dummy variable.

TABLE 8

NUMBER OF RESPONDENTS AND PROPORTION RESPONDING BY VARIABLE AND GRADE

(N in Parentheses)

Variable	No. of Respondents			
	Ninth		Twelfth	
Sex	98.6	(15,578)	99.0	(15,331)
Race	97.0	(15,321)	98.9	(15,305)
Father's Occupation	81.4	(12,851)	84.9	(13,146)
Father's Education	90.1	(14,230)	88.6	(13,722)
No. of Siblings	98.2	(15,509)	98.8	(15,303)
Verbal Achievement	100.0	(15,793)	100.0	(15,483)
Curriculum Placement	71.8	(11,344)	98.2	(15,212)
Ability Group	62.4	(9,853)	71.1	(11,007)
Grades	94.6	(14,939)	97.0	(15,016)
Aspirations	97.3	(15,368)	96.3	(14,903)
Total Sample		(15,793)		(15,483)

This violates an assumption of regression analysis, that the errors are uncorrelated. The total effects estimated are, however, not changed; as Boyle argues, "applying path analysis operations to dependent dummy variables gives the same results as assuming equal intervals for that dependent variable."[5] The analysis is oriented towards estimating effects, rather than goodness of fit, so the violation seems justified.

The Techniques

The data reduction and interpretation of results have involved primarily the techniques of path analysis and an analysis of covariance. Path analysis[6] allows one to utilize an explicit causal framework to derive quantitative results about linear, additive relationships among variables in a system. The correlations between any pair of variables can be decomposed by repeated applications of the basic theorem of path analysis:

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[5]Richard P. Boyle, "Path Analysis and Ordinal Data," American Journal of Sociology, LXX (January, 1970), 471.

[6]Otis D. Duncan, "Path Analysis: Sociological Examples," American Journal of Sociology, LXXII (July, 1966), 1-16.

$$r_{ij} = \sum_{q} p_{iq} r_{jq} \qquad \text{[Eq. 1]}$$

where i and j denote any two variables in the system and the index of runs over all variables from which paths lead directly to x_i. Antecedent, or predetermined variables are those which are temporally or logically prior to outcomes and which exert a measurable influence.

The relationships postulated are in general presented separately for the total sample and "within schools." The model within schools is based on an analysis of covariance which decomposes the variance and covariance into orthogonal between and within school components. Under the assumption that school effects can be interpreted as an additive constant, the mean value for each variable in each school is subtracted from each student's score, and the values to be interpreted are actually deviations from school means.[7]

In the present analysis, the within school parameters were calculated in a slightly more complicated fashion.

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[7]For a complete discussion and derivation of the methodology employed, see Robert M. Hauser, "Family, School, and Neighborhood Factors in Educational Performances in a Metropolitan School System,"(unpublished doctoral dissertation, University of Michigan, Department of Sociology, 1968), Chapter II.

Forty-eight dummy variables were added to the original data tapes representing the school in which the student was enrolled. For each within school equation, forty-seven of the dummy variables were entered first into the equation predicting an outcome, followed by the independent variables of interest. The regression equation

$$V_i = b_o + \sum_{j=1}^{47} b_j X_{ji} + b_{48} O_i + b_{49} E_i + b_{50} S_i + e_i \qquad \text{[Eq. 2]}$$

represents the determination of verbal ability by the social class background variables. The unstandardized regression coefficients, b_{48}, b_{49}, and b_{50}, are identical to the coefficients calculated from a model such as equation 3.

$$(V_{ij} - \bar{V}_{.j}) = b_{48}(O_{ij} - \bar{O}_{.j}) + b_{49}(E_{ij} - \bar{E}_{.j}) + b_{50}(S_{ij} - \bar{S}_{.j}) + e_{ij} \qquad \text{[Eq. 3]}$$

In order to derive the standardized within school coefficients, b_w^*, the unstandardized coefficients could be standardized by the within school standard deviations, since

$$b_{yx(w)} \frac{\sigma_{x(w)}}{\sigma_{y(w)}} = b^*_{yx(w)} \qquad \text{[Eq.4]}$$

However, the unstandardized regression coefficients from both Equation 2 and Equation 3 are identical, implying

$$b^{*}_{yx(w)} = b^{*}_{yx} \left[\frac{\sigma y}{\sigma x}\right] \cdot \left[\frac{\sigma xw}{\sigma yx}\right] \qquad \text{[Eq. 5]}$$

and

$$\frac{\sigma_y}{\sigma_x} \cdot \frac{\sigma_{x(w)}}{\sigma_{y(w)}} = \frac{\sigma_{xw}/\sigma_x}{\sigma_{yw}/\sigma_y} = \frac{r_{(xw)x}}{r_{(yw)w}} =$$

$$\sqrt{\frac{1 - E^2_{xy}}{1 - E^2_{yx}}} \qquad \text{[Eq. 6]}$$

That is, multiplying the standardized regression coefficient obtained in Equation 2 by the ratio of the proportion of variance within schools on the dependent variable produces the appropriate coefficient.

The within school correlation matrices were calculated by a series of regression equations which regressed all necessary combinations of variables including one independent variable and forty-seven dummy school variables in the equation simultaneously. The standardized beta coefficient for the independent variable, net of school effects, was multiplied by the relevant ratio of within school variances computed as above.

The disturbance terms for the within school model were calculated from the sums of squares explained in Equation 3, and the proportion of variance within schools.

Let R_A^2 represent the sums of squares explained by Equation 3, including O, E, S and forty-seven dummy variables. Let R_B^2 represent the variance between schools in verbal, or the proportion of variance explained by Equation 7.

$$V_{ij} = b_o + \sum_{j=1}^{47} b_j x_{ij} + e_{ij} \qquad \text{[Eq. 7]}$$

Then

$R_B^2 - R_A^2$ is the proportion of total variance uniquely explained by O, E, and S. Multiplying the equation

R_{within}^2 yields the proportion of within school variance explained by deviations on O, E, and S. There can be no joint variance accounted for by the within school deviations and school effects, since the deviations are uncorrelated and orthogonal to the between school components for O, E, and S.

The procedure outlined above has only computing convenience to recommend it; the results are identical to those which would have been obtained had deviation scores

been used. For the present analysis, the coefficients were calculated by hand. The only advantage would seem to be that school means for every variable do not have to be computed in advance and entered as constants. This saves considerable recording time and a second pass through a large data file.

The within school analysis involved the assumption that interactions between within school slopes were not present. Tests for interactions revealed that this was not the case for the schools in the present analysis, and separate regressions were also computed for each school. The correlation matrices, means, and standard deviations for all variables in the present analysis are presented in the Appendix. Further analysis tended to confirm the argument offered by other authors,[8] that interactions between slopes were neither large nor substantially important. However, the processes within schools are typically presented as both average within school effects and parameters calculated by the analysis of covariance.

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[8]Hauser, "Schools and the Stratification Process," pp. 587-611.

The Basic Model

Figure A presents in diagramatic form the postulated relationships to be analyzed. The model presents background factors, including fathers occupational prestige, and educational attainment, number of siblings, and race as predetermined variables; the correlations between these variables are accepted as given and not analyzed. Each exerts an independent effect on V, the student's verbal ability. Achievement as well as background factors influence curriculum placement, C, and grades G. The determinants of aspirations, I shall argue, are largely the intervening school variables, operating independently of social class background. The direct effects of social class, symbolized by the dotted arrows in the diagram, are quite trivial for students in the present sample of schools.

The arrows of principal interest in the analysis are those labeled a through d, the direct effects of social class on curriculum placement. The assignment process within schools is determined in this model, by the social class background of the student and tested ability. If the unique effects of social class or racial background are large and positive, one would argue that placement within schools

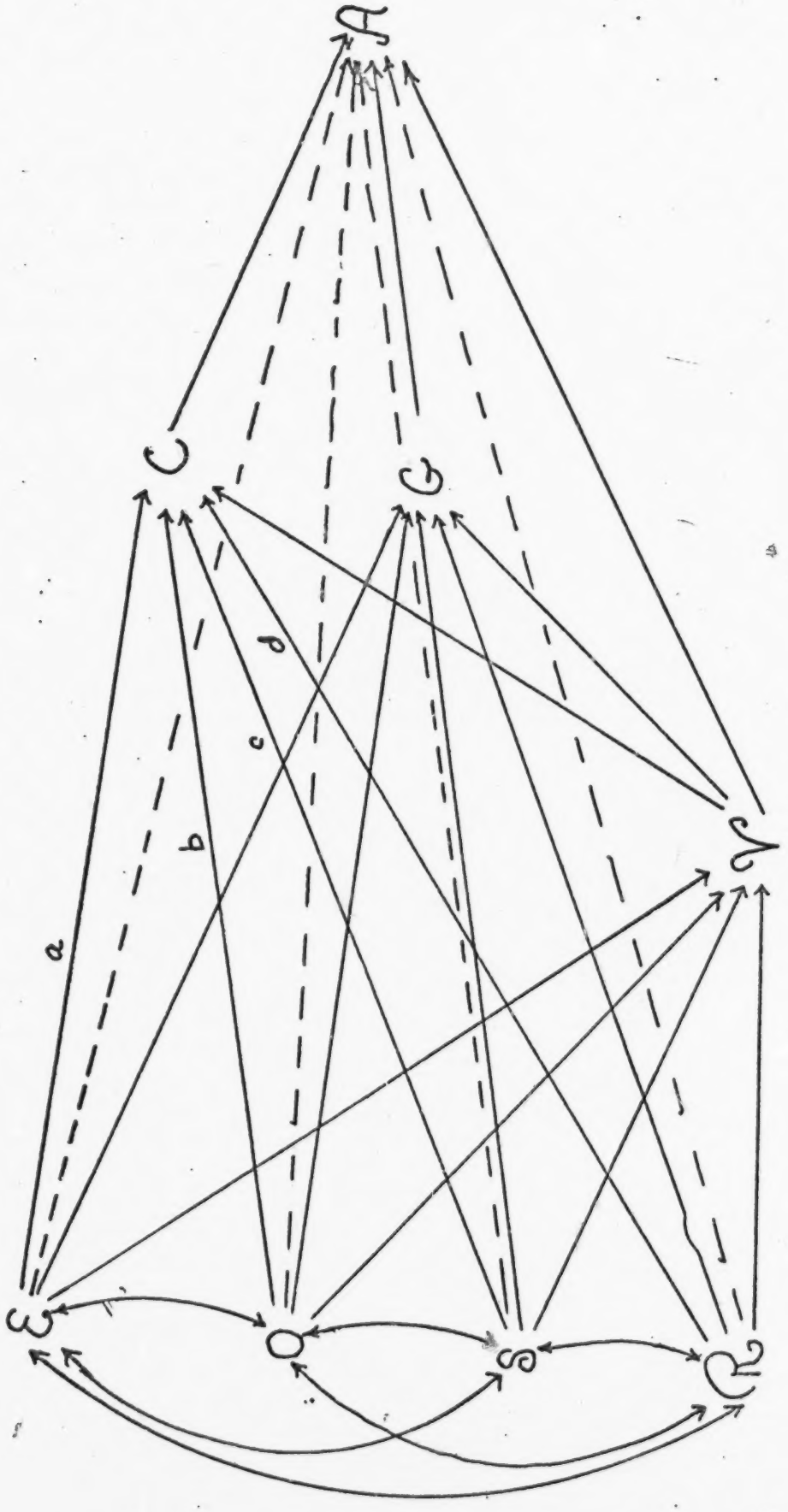

FIGURE 1. HYPOTHETICAL MODEL OF THE PROCESS OF STRATIFICATION WITHIN SCHOOLS. (SEE TEXT FOR IDENTIFICATION OF VARIABLES.)

tends to operate to the advantage of students from higher social class backgrounds, reinforcing, perhaps, existing social class differences among students. The magnitude oe effects on grades are also viewed in this perspective; grades are an academic reward for performance, and high grades a prerequisite for admission to college. If schools differentially reward students, the possibility of being accepted into a college may ultimately depend on social class background rather than ability. The causal assumptions of the model can be criticized, since ability was tested during the final year of school, rather than indicating earlier intelligence. The achievement level of pupils may depend on learning during high school, and the performance and exposure implicit in grading and assignment would then tend to be reflected in differential achievement.

Even more seriously, the assumption that curriculum influences aspirations assumes that placement is not determined by student aspirations. Very little is known about the formation of aspirations over time, or the relative importance of school experiences in developing and reinforcing student aspirations. Until the reciprocal relationships can be developed in a causal framework, the model is clearly

deficient. It is quite likely that the aspirations reported by students at one point in time reflect both the success a student has experienced in school, through grades and placement, and the cumulative impact of early aspirations. If one were to view the school as a "neutral" institution devoted primarily to effectuating aspirations formed prior to entry into school, the model might well postulate the students aspirations as predetermined, influencing the grades and curriculum placement through individual motivations and attitudes. The alternative rationale adopted is to view aspiration as results of school experiences, and representing the "best guess" a student in the twelfth grade may make about future educational attainment. It should be noted that aspirations viewed in the perspective are almost entirely determined by the intervening school experiences, rather than background variables. Until the theoretical and empirical relationships are clarified by longitudinal analysis, the postulated model which views aspirations as a consequence of placement seems preferable to a model which allows them to be a predictor of school success. The directions of causality postulated perhaps overstate the effects of school experiences. The view of schooling and

experiences in school implicit in the present analysis is that of intervening variables connecting, mediating, and influencing ultimate attainment.

Conclusions

The present chapter has concentrated on the methodological and substantive issues involved in interpreting and ordering the variables analyzed causally. The responses and coding schemes adopted have been reviewed, and the techniques used to analyze within school effects presented. The logic and rationale for the present analysis has been discussed, and the issues of interpretation raised, which will be discussed in more detail later.

CHAPTER IV

SOCIAL CLASS BACKGROUND AND CURRICULUM PLACEMENT

The assignment of students to curricula reflects the schools assessment of the student's ability, motivation and performance record, as well as student preferences and organizational arrangements in the high school. The selected sample of high schools were chosen to be structurally homogeneous. Since all were four-year high schools in the urban North, students were presumably subject to the influence and evaluations of the school for a constant period of time. Since the schools were structured to deal with all students over comparable periods of their educational development, the effects of grouping and assignment policies should be relatively comparable.

The present analysis concentrates on the determinants of placement for twelfth grade students. The model of the process of assignment presented in the preceding chapter will be applied to the sample of forty-eight schools, and the results examined. The focus of the present chapter is on the relative impact of social class background factors

on verbal achievement and on curriculum assignment, when verbal ability is controlled. In the first section, we shall present the model of assignment for the entire sample of students, pooling students in all schools. This model intentionally confounds the effects of placement between and within school; the parameters represent the total relationship between background factors, verbal achievement, and curriculum placement for all students in the sample, independently of which school they attended.

The effects of background and ability on grades and aspirations are also examined, and the importance of curriculum assignment on aspirations is assessed.

The within school relationships were explored by an analysis of covariance technique proposed by Hauser; and by separate calculations for each school. The coefficients from the within school model averaged across 48 schools are compared to the parameters calculated from the within school covariance model. The within school model utilized in the analysis of covariance depends on the assumption that school effects can be interpreted as an additive constant; tests are computed for possible interactions between within school slopes in the present sample. For comparison, the basic

model of curriculum assignment pooled across all schools is presented for ninth grade students and for white students separately. Finally, the implications of the process of within school stratification are assessed, and conclusions drawn.

A Path Diagram of Curriculum Placement

The reduction and interpretation of the data was accomplished by the means of path analysis. The total sample of students, pooled across all schools, was first analyzed. The correlations, means, and standard deviations for the pooled sample are presented in Tables 9 and 10. The resulting path diagram is presented in Figure 2. A precise explication of the techniques can be found in Duncan[1] or in Sewell Wright.[2] The single-headed unidirectional arrows in Figure 2 represent causal influence, while the curved bi-directional arrows symbolize unanalyzed correlations among

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[1]Duncan, "Path Analysis: Sociological Examples," pp. 1-16.

[2]Sewell Wright, "The Method of Path Coefficients," Annals of Mathematical Statistics, V, No. 3 (September, 1934), pp. 161-215; and "Path Coefficients and Path Regressions: Alternatives or Complementary Concepts," Biometrics, XVI, No. 2 (June, 1960), pp. 189-202.

TABLE 9

TWELFTH GRADE

MEANS AND STANDARD DEVIATIONS OF VARIABLES FOR TOTAL POOLED SAMPLE AND PROPORTION OF VARIANCE BETWEEN SCHOOLS

Variable	Mean	S. D.	Proportion of the Variance Between Schools E^2_{yx}
Sex	1.507	.501	6.703%
Race	.787	.409	33.014
Verbal Ability	36.633	12.834	18.126
Father's Occupation	55.151	18.702	13.073
Father's Education	11.656	3.414	14.417
No. of Siblings	2.860	2.263	8.204
Grades	3.421	.910	5.433
Curriculum Placement	.520	.500	10.827
Aspirations	15.014	2.222	10.951

TABLE 10

TWELFTH GRADE

ZERO ORDER CORRELATION MATRIX OF VARIABLES
ANALYZED FOR TOTAL POOLED SAMPLE
ALL STUDENTS IN 48 SCHOOLS

	X	R	V	O
Sex	1.0000	-0.0473	-0.0529	-0.0411
Race		1.0000	0.3349	0.2391
Verbal Achievement			1.0000	0.3087
Father's Occupation				1.0000
Father's Education				
No. of Siblings				
Grades				
Curriculum				
Aspirations				

TABLE 10-CONTINUED

E	S	G	C	A
-0.0404	0.0342	0.0481	-0.0747	-0.1730
0.1767	-0.2942	0.1200	0.1357	0.0691
0.3168	-0.2663	0.3791	0.5358	0.4639
0.5263	-0.1920	0.1910	0.3055	0.3067
1.0000	-0.1954	0.1922	0.3184	0.3355
	1.0000	-0.1462	-0.2149	-0.1922
		1.0000	0.3346	0.3290
			1.0000	0.5959
				1.0000

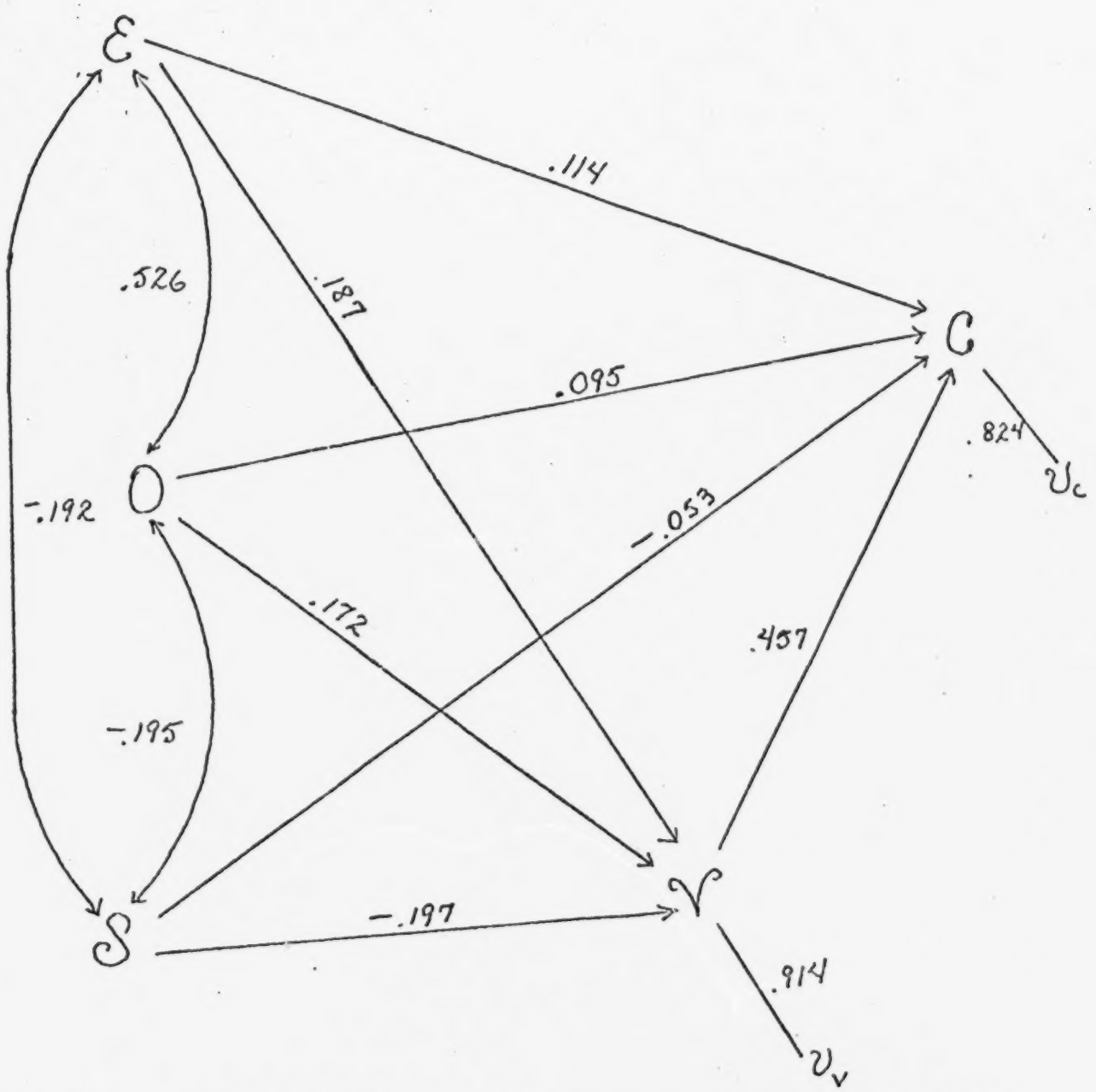

FIGURE 2. PATH DIAGRAM OF ASSIGNMENT PROCESS FOR TOTAL. TWELFTH GRADE SAMPLE. (SEE TEXT FOR DEFINITION OF VARIABLES).

in achievement, by any means, the explanatory power of background is larger than in similar studies.[3]

The hypotheses to be tested concerned the relative magnitude of effects between social class background, and curriculum placement. The direct and indirect effects of social class can be computed into the proportion due to social class background and verbal achievement, where the total explained variance in C is equal to the

$$R^2_{c.voes} = p_{cv}\, r + p_{co}\, r_{co} + p_{ce}\, r_{ce} + p_{cs}\, r_{cs}$$

where the components represent the direct influence of verbal ability on placement, the direct effects of social class summed over k background variables, and the indirect effects of social class operating through the relationship between background and verbal ability. The magnitude of these effects are presented in Table 11.

It is clear from the pattern of effects presented that most of the variance in curriculum placement is explained by verbal achievement test scores, with social class

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[3]See for example, Hauser, "Family, School and Neighborhood Factors in Educational Performances in a Metropolitan School System."

TABLE 11

DIRECT AND INDIRECT EFFECTS OF SOCIAL CLASS BACKGROUND ON CURRICULUM, GRADES AND VERBAL ACHIEVEMENT, AND THE DIRECT EFFECTS OF VERBAL ACHIEVEMENT

PROPORTIONS OF VARIANCE EXPLAINED			
Dependent Variable	Direct Effects of Verbal Ability	Direct Effects of Social Class	Indirect Effects of Social Class
Verbal	-	16.5%	-
Curriculum	21.2%	2.4	9.5%
Grades	11.5	1.3	2.5

background accounting for only a very small portion of the variance explained directly. If the indirect effects of social class played a large or significant part in differential outcomes, one would expect the direct effects to be much larger. Since the exact criteria involved in placement decisions is not clear from the school information abailable, it is possible that other unmeasured variables do effect the probabilities of assignment. The student's motivation and performance, as well as recommendations from teachers are also utilized for grouping decisions; however, since such differences between pupils are perhaps more highly related to differences in background than to ability level, it is difficult to argue that the model of grouping which included other criteria variables would demonstrate larger effects due to social class. Similarly, one could argue that other unmeasured exogenous factors influenced grouping. However, to make a case that schools or the selection and stratification process within schools discriminated against the lower class student, one would need a measure of social class not highly related to the variables chosen. The evidence strongly suggests that grouping is largely determined by the ability level of the student,

rather than background factors. Stratification in schools seems to be determined by ability level rather than the social class background.

Figure 3 expands the basic model of within school stratification presented to include grades and aspirations. The causal ordering of grades and curriculum is ambiguous, since both variables measure the result of processes operating throughout the high school career. Both are presented as determined by background variables and student ability level. In the present analysis, the student's educational aspirations are treated as if determined by the processes within the school; the model is probably deficient to the extent that little is known of the formation of aspirations or how they change over time. A more precise causal model might allow the relationship between aspirations and other school outcomes to be reciprocal; however, the assumptions necessary to render such a model solvable do not seem tenable with the present data.[4] Logically, the student's responses to the question "How far do you intend to go in school?" could

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[4]See Otis D. Duncan, Archibald O. Haller, and Alejandro Portes, "Peer Influences on Aspirations: A Reinterpretation, "American Journal of Sociology, LXXIV (September, 1968), pp. 119-137.

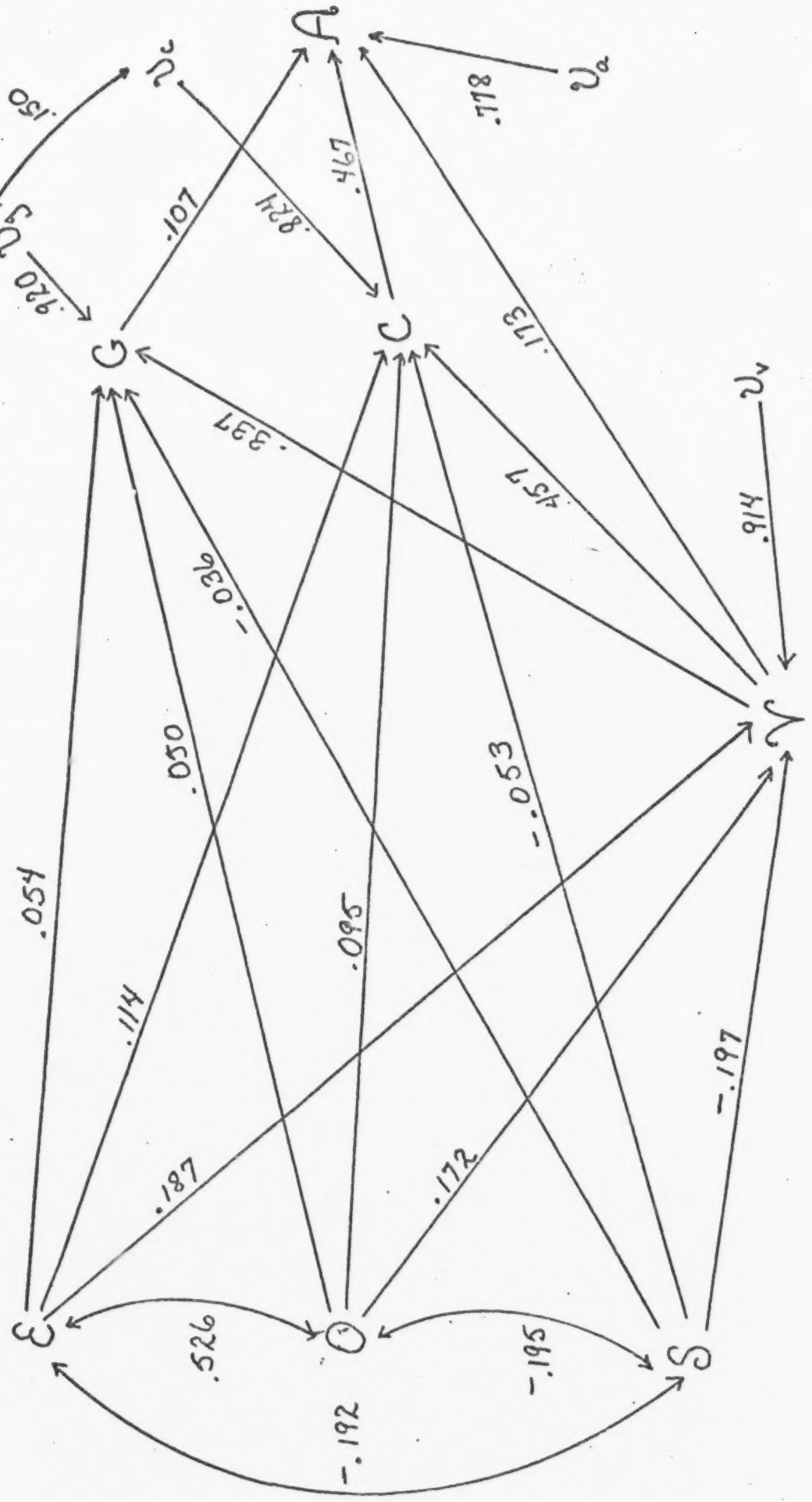

FIGURE 3. PATH DIAGRAM OF THE PROCESS OF ASSIGNMENT FOR ALL TWELFTH GRADE PUPILS. SEE TEXT FOR DEFINITIONS OF VARIABLES.

be interpreted as the best prediction the student could give in the twelfth grades as to how far he will pursue his education. The responses to such a question would then reflect the cumulative experiences in the home and in school; this argument is the justification for ordering the variables as presented. The paths between social class background and aspirations were deleted from the model; the effects were, without exception, trivial. No measure of social class contributed more than one per cent to the variance explained in aspirations when curriculum, grades, and verval achievement were included in the equation; the total R^2 increased by only 3 per cent when all three variables were added sumultaneously to the equation. The beta coefficients for several alternative models are presented in Table 12. The small additive effects of social class background on aspirations when intervening school factors are included, have been noted in the literature. Sewall and Shah[5] found that

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[5]William H. Sewell and Vimal Shah, "Social Class, Parental Encouragement, and Educational Aspirations," American Journal of Sociology, LXXIII (March, 1968), pp. 559-572; William H. Sewell and Vimal Shah, "Socioeconomic Status, Intelligence, and the Attainment of Higher Education," Sociology of Education, XL (Winter, 1967), pp. 1-23; William H. Sewell, "Social Status and Educational and Occupational Aspiration," American Sociological Review, XXII (February, 1957), pp. 67-73.

TABLE 12

STANDARDIZED BETA COEFFICIENTS FOR THE DETERMINATION OF VERBAL ACHIEVEMENT, GRADES, CURRICULUM, AND ASPIRATIONS FOR TOTAL TWELFTH GRADE SAMPLE FORTY-EIGHT SCHOOLS

EQUATIONS	INDEPENDENT VARIABLES IN EQUATION							R^2
	O	E	S	V	G	C	A	
V on O,E,S	.172	.188	-.197					.165
V on O,E,S,C,G,A	.072	.071	-.116		.180	.319	.147	.383
G on O,E,S	.112	.113	-.103					.058
G on O,E,S,V	.054	.050	-.036	.337				.153
G on O,E,S,V,C	.038	.031	-.027	.260		.168		.172
G on O,E,S,V,C,A	.030	.017	-.025	.238		.106	.136	.183
C on O,E,S	.173	.199	-.143					.147
C on O,E,S,V	.095	.114	-.053	.457				.321
C on O,E,S,V,G	.087	.107	-.048	.411	.134			.336
C on O,E,S,V,G,A	.050	.047	-.033	.282	.071		.404	.453
A on O,E,S	.166	.226	-.116					.149
A on O,E,S,V	.102	.159	-.043	.372				.264
A on O,E,S,V,G	.093	.148	-.038	.319	.156			.285
A on O,E,S,V,G,C	.055	.101	-.017	.140	.098	.436		.411
A on G,C,V				.173	.107	.467		.394

UNIQUE: V = .174
SES = .034
JOINT = .113

TABLE 13

STANDARDIZED BETA COEFFICIENTS FOR THE DETERMINATION OF VERBAL ACHIEVEMENT, GRADES, CURRICULUM, AND ASPIRATIONS
TWELFTH GRADE
NET OF SCHOOL EFFECTS

EQUATIONS	INDEPENDENT VARIABLES IN EQUATIONS							R^2
	O	E	S	V	G	C	A	
V on O,E,S	.111	.145	-.155					.255
V on O,E,S,C,G,A	.030	.041	-.088		.193	.295	.150	.451
G on O,E,S	.096	.111	-.084					.092
G on O,E,S,V	.056	.058	-.027	.368				.193
G on O,E,S,V,C	.042	.040	-.019	.298		.153		.209
G on O,E,S,V,C,A	.035	.028	-.016	.276		.100	.123	.217
C on O,E,S	.142	.180	-.120					.197
C on O,E,S,V	.091	.113	-.049	.459				.354
C on O,E,S,V,G	.094	.106	-.045	.414	.123			.366
C on O,E,S,V,G,A	.051	.050	-.028	.285	.068		.394	.471
A on O,E,S	.134	.205	-.106					.202
A on O,E,S,V	.092	.150	-.047	.379				.309
A on O,E,S,V,G	.084	.142	-.044	.328	.140			.325
A on O,E,S,V,G,C	.049	.097	-.025	.154	.089	.419		.437
A on V,G,C				.174	.098	.447		.423

socio-economic background contributed less than six per cent in the prediction of college plans when intelligence and parental encouragement were controlled on a sample of high school seniors in Wisconsin.

The very strong relationship between aspirations and curriculum placement in Figure 3 should be noted. The direct effects account for roughly one-fourth of the total variance to be explained in aspirations. The relationship documented cannot be strictly interpreted as causally due to the effect of curriculum placement, since students who do not aspire to attend college would be more likely to drop out of the college prep curriculum before reaching the twelfth grade. At one point in time, the student reporting himself in the college track would be likely to report college aspirations, whenever formed; the linkage between changes in either aspirations or curriculum are not clearly causal, nor temporally distinct for groups of students. The magnitude of the direct effect, however, suggests that curriculum is considerably more important than either ability or grades in the determination of aspirations. The increment in R^2 when curriculum is included in the prediction of aspirations is 12.6 per cent, when all other variables in

the analysis are included.

While the data lend little support to the contention that the mechanisms of selection operating in public high schools are discriminatory, alternative interpretations are consistent with the results presented. Plausible arguments could be offered that the pooled sample of students confounds possible interactions between schools, sex or racial groups, and that the parameters of placement are distorted. Second, the analysis is restricted to twelfth grade students and may misrepresent the effects of grouping prior to this time. It is possible that the postulated model understates the effects of social class on placement by concentrating on students late in their educational careers; if placement effects achievement, perhaps the cumulative effects of discriminatory grouping throughout the educational system result in largely meritocratic outcomes in the twelfth grade. The criticism is twofold: either the postulated model of placement is invalid because achievement test scores reflect the outcomes of grouping, or the social class effects are understated since the cumulative bias reinforces differences between social classes in achievement. Third, the possibility exists that an

unmeasured determinant of grouping distorts the relationships presented.

The alternative explanations can partially be countered with the present data. Differences between schools are treated in greater detail later in the present chapter, while a complete discussion of race and curriculum placement is postponed until Chapter V. Equivalent models of the determinants of grouping, however, can be calculated for males, for white students, and for ninth grades in the present sample of schools. Figures 4, 5, 6 and 7 represent the results of equations computed for all students pooled across all schools. The path diagrams for whites and male students are quite similar to the original model of placement, and do not alter the interpretation offered previously. The determination of placement for only white students in the present sample increases the predictive power of the model, but does not change the relative magnitude of effects.

Figures 6 and 7 represent comparable models of placement in the ninth grade, separately by race. Ninth grade students in the high schools studied had been enrolled in the high school barely two months prior to testing and

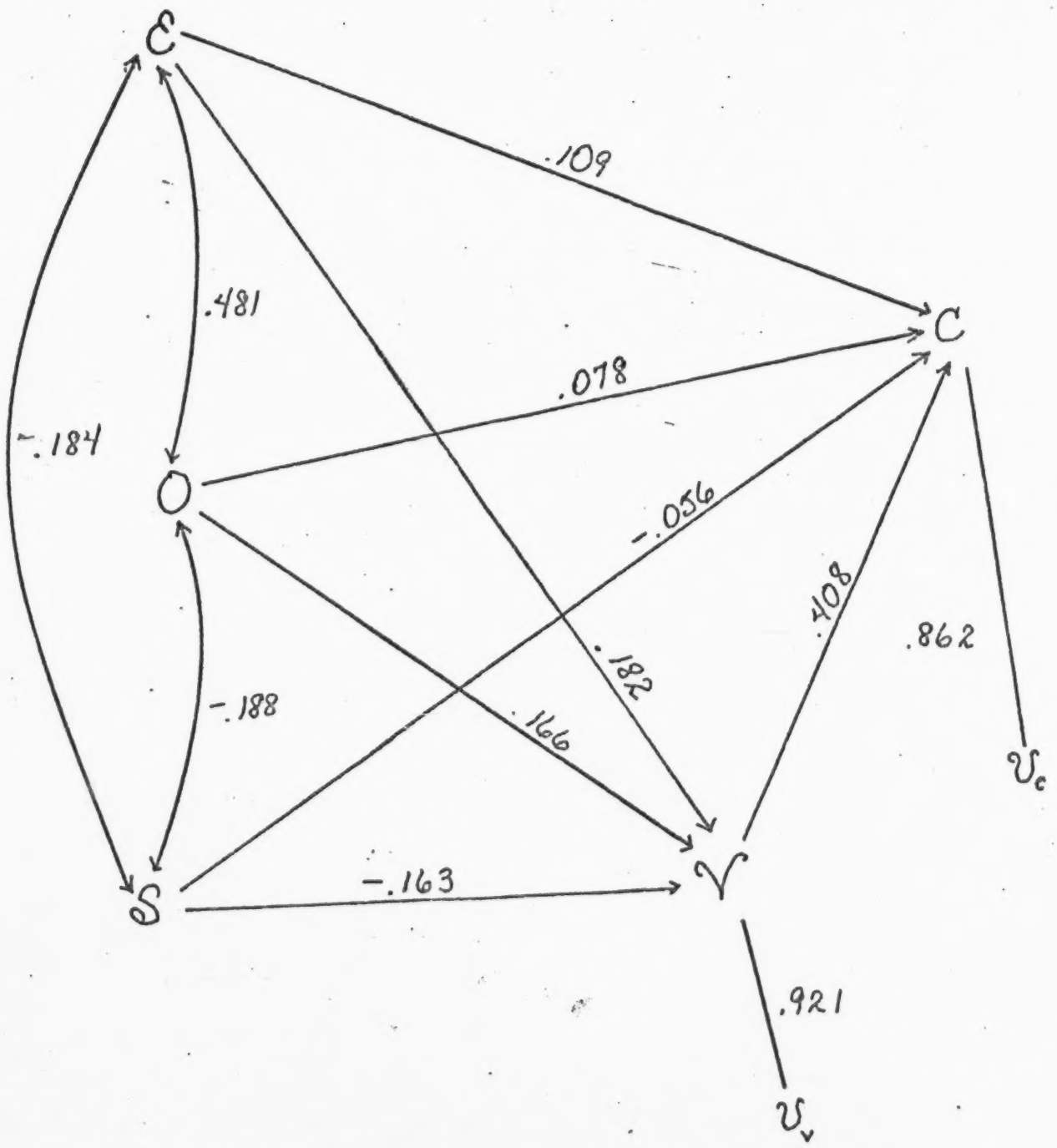

FIGURE 4. PATH DIAGRAM FOR THE ASSIGNMENT PROCESS FOR TWELFTH GRADE MALES IN TOTAL SAMPLE. (SEE TEXT FOR DEFINITION OF VARIABLES.)

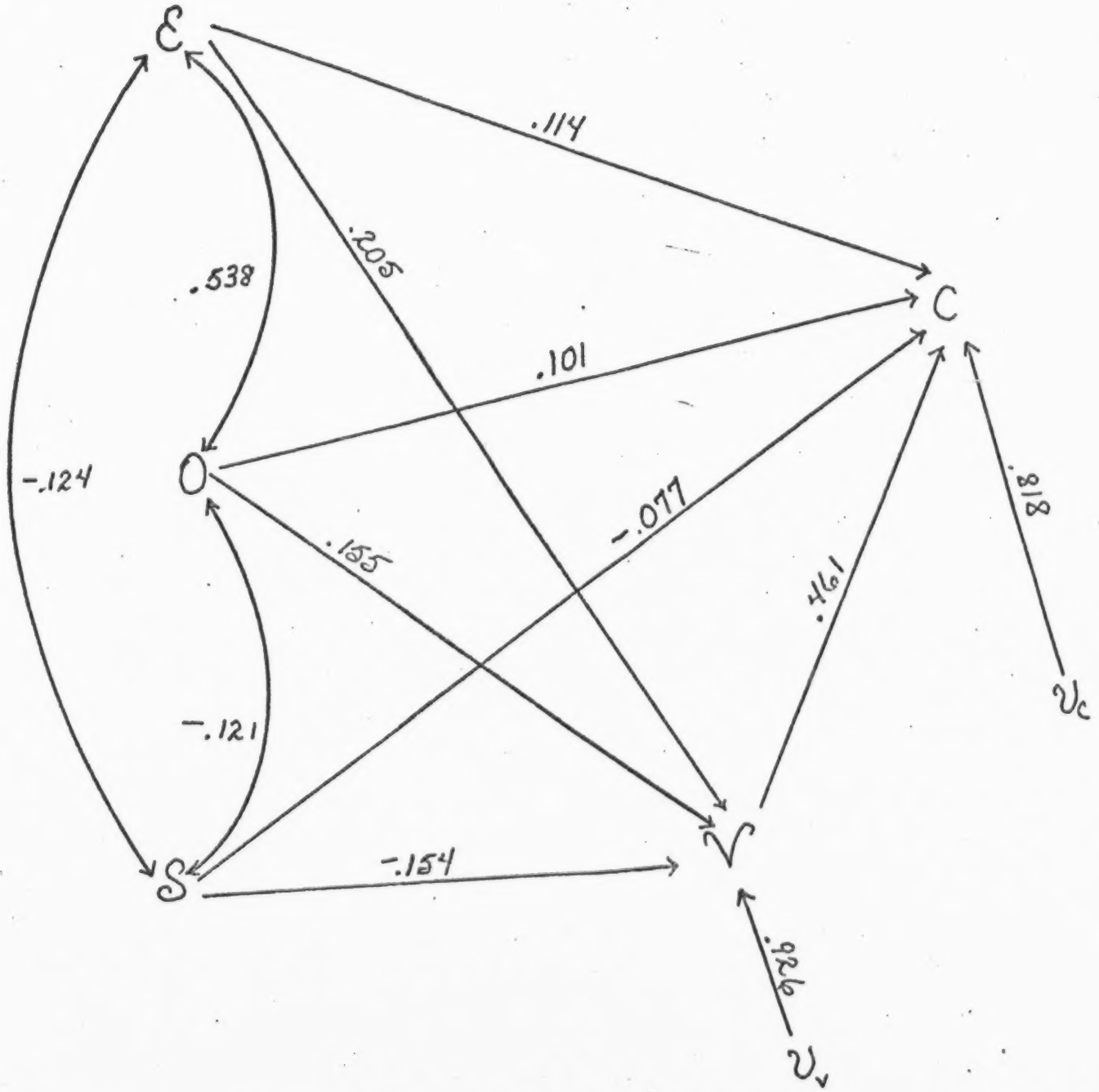

FIGURE 5. PATH DIAGRAM FOR THE ASSIGNMENT PROCESS FOR WHITE 12TH GRADE STUDENTS IN TOTAL SAMPLE. (SEE TEXT FOR DEFINITION OF VARIABLES.)

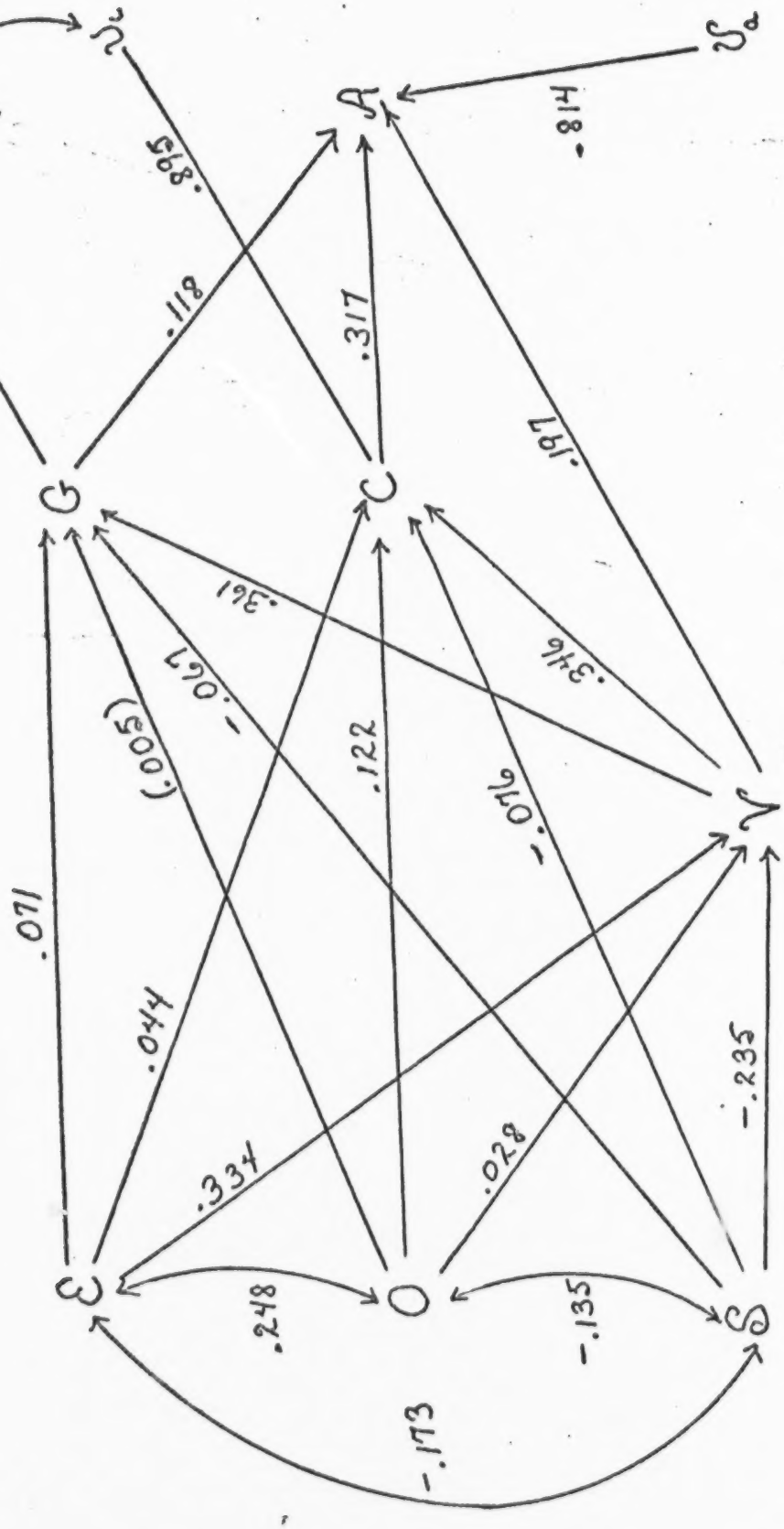

FIGURE 6. PATH DIAGRAM FOR THE DETERMINATION OF VERBAL SCORE, GRADES, CURRICULM ASSIGNMENT AND ASPIRATIONS FOR TOTAL SAMPLE OF NINTH GRADE WHITE PUPILS. (SEE TEXT FOR DEFINITION OF VARIABLES.)

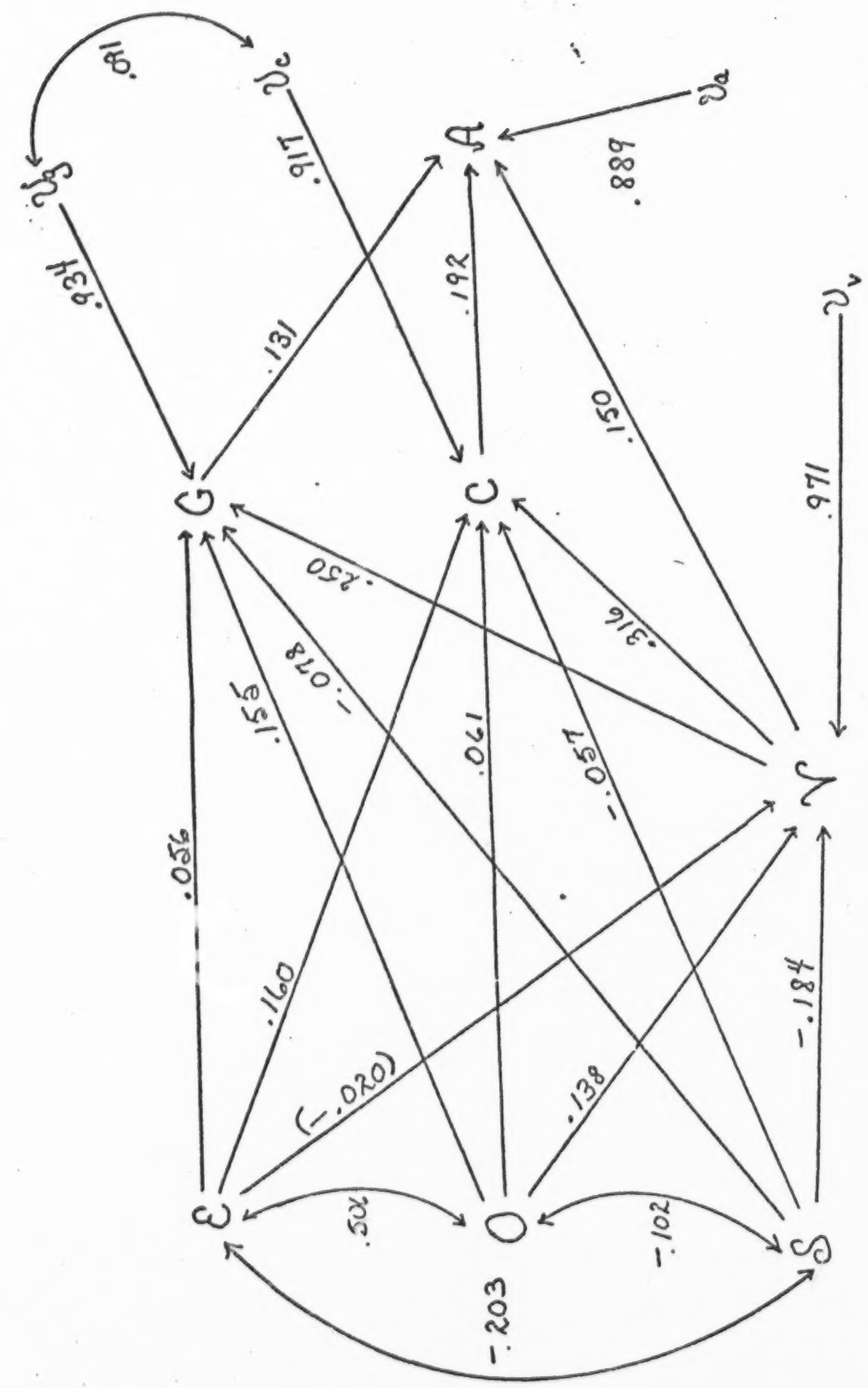

FIGURE 7. PATH DIAGRAM FOR THE DETERMINATION OF VERBAL SCORE, GRADES, CURRICULUM ASSIGNMENT AND ASPIRATIONS OF THE TOTAL SAMPLE OF NINTH GRADE, NON-WHITE PUPILS. (SEE TEXT FOR DEFINITION OF VARIABLES.)

filling in the questionnaires administered by the Equality of Educational Opportunity Survey. Many of these students had probably not been assigned to a curriculum yet, which would account for the large proportion of non-responses to the question regarding placement. Nearly thirty per cent of the students surveyed replied that they did not know which curriculum they were in. An extensive analysis of the determinants of grouping at the ninth grade was not undertaken for this reason. Ideally, to test the effects of placement on student achievement, longitudinal data is needed. The ninth grade results are offered only for comparative purposes. If the achievement of pupils was an outcome of grouping in high school, one would expect the ninth grade relationship between achievement and curriculum to be smaller than the twelfth, which it is. The direct effects of social class on placement, however, are also considerably smaller; only the path between father's occupational prestige and curriculum is larger than the comparable coefficients for the twelfth grade. If schools reinforced the ability differences between pupils by selective assignment, one would expect the relationship between background and ability to increase between the ninth and twelfth grade; in fact,

the sums of squares explained by background decrease slightly (R^2 = .244 and .214), despite the increased reliability of scores for twelfth grade students. The overall conclusion to be reached from the comparison of ninth and twelfth grade students is the similarity of the effects. At both grades, the largest direct effect is the path between verbal ability and curriculum; the net effects of social class on curriculum are relatively trivial in comparison, and differences in placement due to social class seem to operate almost entirely through the effects of verbal achievement.

Curriculum Placement Within Schools

The within school model of curriculum placement was calculated in a method slightly different from that suggested by Hauser, although the results are identical. The covariance model is based upon the decomposition of the variance such that

$$\sum_j \sum_i (Y_{ij} - \bar{Y}_{..})^2 = \sum_j \sum_i (Y_{ij} - \bar{Y}_{.j})^2 + \sum_j n_j (Y_{.j} - \bar{Y}_{..})^2 \qquad \text{[Eq. 10]}$$

where $\sum_j \sum_i (Y_{ij} - \bar{Y}_{.j})^2$ is the within school component. Equivalently, the formula

$$\sum_j \sum_i (Y_{ij} - \bar{Y}_{..})(x_{ij} - \bar{x}_{..}) =$$

$$\sum_i \sum_j (Y_{ij} - \bar{Y}_{.j})(x_{ij} - \bar{x}_{.j}) +$$

$$\sum n_j (\bar{x}_{.j} - \bar{x}_{..})(\bar{Y}_{.j} - \bar{Y}_{..}) \quad \text{[Eq. 11]}$$

holds for the covariance. In the notation of Walker and Lev, Eq. 8 could be written $c_{yyt} = c_{yyw} + c_{yyb}$ and Equation 9 as $c_{xyt} = c_{xyw} + c_{yyb}$. The within school correlation would be expressed by $\frac{c_{xyw}}{\sqrt{c_{xxw} c_{yyw}}}$. In the analysis of covariance, each variable is partitioned into orthogonal components, representing the within school and between school variances.[6] The model specifies that the relationships between variables within groups are treated as deviations from group means. Since the components are orthogonal, an effect must operate through either the differences among individuals within groups or through differences between groups.

The within school correlations can be calculated by

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[6] Ralph H. Turner, The Social Context of Ambition (San Francisco: Chandler, 1964).

computing the standardized regression coefficients for a regression equation of the form:

$$Y_i = b_o + b_1 x_i + \sum_{i=1}^{47} b_i S_i + e_i$$

where b_i (i = 1,47) represent dummy variables for the schools in the sample. The standardized coefficient, b_1^*, is equal to the within school correlation, r_{xy} when standardized by $\sqrt{c_{xxw}}$, or the proportion of variance within $\sqrt{c_{yyw}}$, schools on the independent variable divided by the proportion of variance on the dependent variable. These calculations were performed for each of the variables analyzed; the resulting within school correlations are presented in Table 12. The path coefficients estimated for the within school model were computed by standardizing the unstandardized coefficients from a multiple regression equation which included all the predetermined variables and the 47 dummy school variables, as described in Chapter III. The model of curriculum placement within schools is presented in Figure 8.

TABLE 14

WITHIN SCHOOL ZERO-ORDER CORRELATION MATRIX

TWELFTH GRADERS IN FORTY-EIGHT HIGH SCHOOLS

	V	O	E	S	G	C	A
V) Verbal Ability	1.0000	.2049	.2266	-.2014	.3712	.4933	.4250
O) Father's Occupation		1.0000	.4653	-.1311	.1524	.2382	.2401
E) Father's Education			1.0000	-.1489	.1610	.2596	.2784
S) No. of Siblings				1.0000	-.1105	-.1661	-.1573
G) Grades					1.0000	.2990	.3007
C) Curriculum Placement						1.0000	.5778
A) Aspirations							1.0000

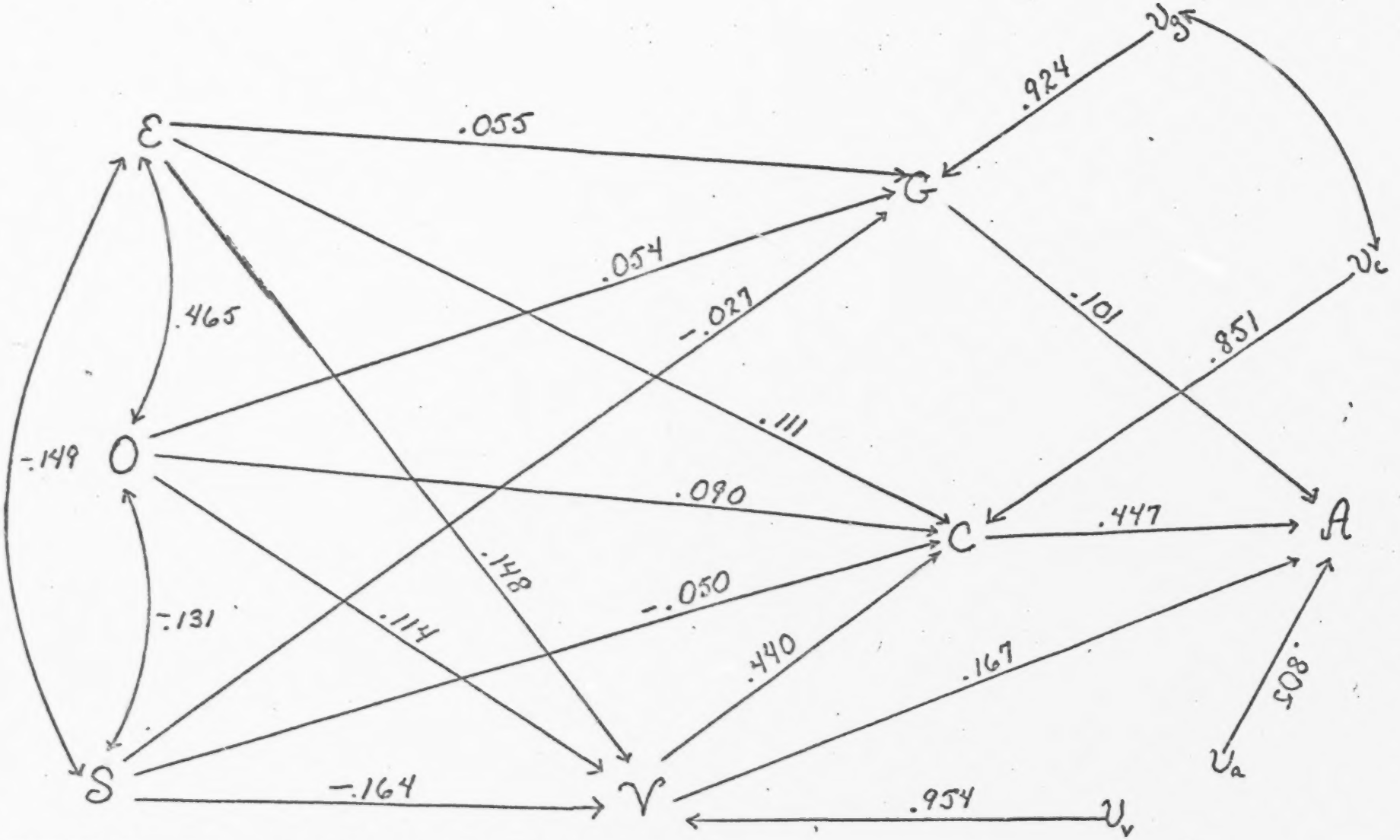

FIGURE 8. PATH DIAGRAM OF WITHIN SCHOOL MODEL, TWELFTH GRADE, FOR THE DETERMINATION OF VERBAL ACHIEVEMENT, GRADES, CURRICULUM PLACEMENT, AND ASPIRATIONS. (SEE TEXT FOR DEFINITION OF FARIABLES.)

DIRECT = .440
INDIRECT = .053

A comparison of the within school model to the model estimated for gross effects does not change the interpretation of the results. The direct effects of social class background on curriculum placement are still quite small, while the within school variance in curriculum placement is largely explained by the relationship between verbal ability and curriculum. The path diagram allows one to decompose the total variance in curriculum assignment explained into direct and indirect effects. The path between curriculum and verbal achievement accounts for slightly more than 80 per cent of the explained variance in placement; the remaining 20 per cent of variance can be attributed to the direct and indirect effects of social class background factors. The direct effects of social class account for less than three per cent of the variance explained in curriculum placement within schools, while the effects of background operate largely through their association with verbal achievement. The decomposition of effects within schools is quite comparable to that previously presented for the total pooled sample, except the relative importance of verbal is greater.

The analysis of covariance requires the assumption that school effects are additive, or equivalently, that the

within school slopes do not differ. In order to assess the magnitude of interactions between slopes, regressions were computed separately for each of the schools in the sample. Separate correlation matrices for each school are presented in the Appendix. The sums of squares explained in each equation were summed for a variety of combinations of independent and dependent variables. The total sums of squares is equal to the sums which would have been obtained had we fitted one equation allowing a unique slope for each variable within every school. The full model for the determination of verbal achievement by social class background yields a total sum of squares explained by fitting 192 parameters. The equation which constrains the within school slopes to be equal can be compared. The restricted model, which fits 50 parameters, is of the following form:

$$V_i = b_o + \sum^{47} b_j x_{ij} + b_{48} O_i + b_{49} E_i + b_{50} S_i + e_i$$

[Eq. 12]

where V is the individual verbal test score, x is the effect of being in a particular school represented by forty-seven dummy variables, and O, E, and S are social class background factors. The R^2 computed for the restricted model in

Eq. 10 can be compared to the full model with an F-test of the following form, for the above example:

$$F_{(192,\ 15,384)} = \frac{(R^2_{full} - (R^2_{restricted}) \ / \ (192-51)}{(1 - R^2_{full}) \ / \ (15,384-192)} \qquad \text{[Eq. 13]}$$

The sums of squares between schools in the dependent variable are subtracted from the total sums of squares explained in Eq. 10 to yield the R^2 for the restricted model. Since the sample size is quite large, the F-test in every case was significant. Equally important, however, is the percentage of variance added by estimating a unique within school slope, or the magnitude of interactions present. Table 13 presents the total sums of squares in verbal achievement in the full and restricted model for a series of multiple regressions. Similar tests for the significance of interactions were performed for the model predicting curriculum, grades and aspirations. The school equations for the analysis were computed by a step-wise routine which added one variable at each step in each school; the order of entry was arbitrarily set, and the sums of squares due to interaction were computed at each step. Table 14 summarizes the results.

TABLE 15

PROPORTIONS OF VARIANCE EXPLAINED IN WITHIN SCHOOL DETERMINATION OF VERBAL ABILITY BY BACKGROUND FACTORS, FULL MODEL, RESTRICTED MODEL, AND INTERACTIONS

Independent Variables	R^2 full	R^2 Restricted	Proportion of Variance Added
V on O	.056	.034	2.2%
O, E	.081	.022	5.9 %
O, E, S	.110	.074	3.6%

TABLE 16

PROPORTIONS OF VARIANCE EXPLAINED IN WITHIN SCHOOL DETERMINATION OF CURRICULUM, GRADES, AND ASPIRATIONS BY FULL AND RESTRICTED MODEL AND PROPORTION ADDED BY INTERACTIONS PRESENT

Independent Variables	R^2_{full}	$R^2_{restricted}$	Proportion Due To Interactions
C on O	.0628	.0506	1.2
C on O, E	.0966	.0758	2.1
C on O, E, S	.1158	.0886	2.7
C on V, O, E, S	.2432	.1895	5.4
G on V	.150	.131	1.9
G on V, O	.159	.140	1.9
G on V, O, E	.165	.149	2.6
G on V, O, E, S	.168	.149	2.9
A on V	.186	.161	2.5
A on V, O	.212	.182	5.1
A on V, O, E	.234	.197	3.6
A on V, O, E, S	.246	.234	1.1
A on V, O, E, S,C	.383	.321	6.2
A on C	.325	.280	4.5
A on C, G	.347	.296	5.1
A on C, G, V	.369	.324	4.5

An examination of Table 16 reveals that no single regression equation which would allow the within school slopes to vary independently accounts for more than 7 per cent of the total variance in the dependent variable. Whether this is considered a large or small amount depends on ones perspective. Since the maximum amount of variance which interaction effects could explain is the total between school variance, the interactions between slopes in the present sample account for between 5.2 and 85.1 per cent of the variance possible. It is reassuring to note that the interactions present between social class variables are added to the equation; the proportion of total variance due to interactions is typically less for the multiple regressions which include more than one background variable. A reason for this could be a differential reliability between schools in the measurement of any one background effect.

The within school parameters for each school from the several different regressions were calculated. The zero-order correlations between slopes were computed for two reasons. First, if differences between within school slopes

were meaningful, one would expect the sopes between two different background variables to be related. A relatively steep slope obtained by regressing achievement on father's occupation might be due to sampling variability; however, if all three background variables were systematically larger for particular schools, one would conclude that the effects of social class on verbal ability were different in the particular school involved. The correlations across schools of the within school first-order equations are present below. The subscripts refer to the slope of the variable within the school involved:

TABLE 17
INTERCORRELATIONS BETWEEN SLOPES

	Verbal on Background	Curriculum on Background
r_{oe}	.261*	.208*
r_{os}	-.183*	-.017*
r_{es}	-.41	-.109*

*Insignificant finding

The intercorrelations are not significantly different from zero except in the case of the relationship between verbal ability on education and verbal ability on number of

siblings. In general it would seem that a relatively steep within school slope on one measure of individual status did not predict a similar relationship between a different predictor of status.

The partial slopes from the within school multiple regression equations predicting v and c were also intercorrelated. The intercorrelations were also insignificant. In fact, the correlations tended to be negative. This fact tends to support the contention that interactions between the slopes of background variables were related to differential reliability or measurement error within a school If a particular background measure was highly unreliable or measured relatively inaccurately within a particular school, the effect would tend to increase the relative importance of other variables within the equations for that school. This tendency, however, was not systematic enough to insure large intercorrelations between partial slopes.

The substantive importance of interactions between variables is at least as relevant as their size. Differences between schools can be divided into two categories: additive effects and non-additive effects or interactions. The analysis of covariance involves assuming that all differences

between schools can be interpreted as an additive constant; however, differences between schools in the within group slopes are also sociologically relevant.

Several authors have argued for the interpretive presence of such interactions. Turner[7] found that the correlation between background status and aspirations was lower in low status schools. The difference might be due to differences in the distributions rather than differences in slopes, however. Coleman[8] argued that students who receive high grades in schools where academic achievement is valued are relatively more intelligent than students in schools where academic achievement is not valued. While we cannot identify which schools value academic achievement from the present survey materials, the argument rests on the assumption that the regression of grades on intelligence differs between schools. Udry[9] argued that the importance

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[9]Turner, The Social Context of Ambition.

[8]James S. Coleman, "The Adolescent Subculture and Academic Achievement," American Journal of Sociology, LXV (January, 1960), pp. 337-347.

[9]John Udry, "Community Context and Academic Achievement," American Sociological Review, XV (June, 1950), pp. 326-348.

of social class in predicting academic performance was related to how homogeneous the community was, and to what degree class lines had crystalized.

In order to support or reject the substantive issues involved, regressions were run predicting three within school slopes. The unstandardized within school regression coefficient predicting grades from verbal achievement, grades from father's occupation, and aspirations from father's occupation were computed separately for each school.

The hypothesis that the within school slope of aspirations on father's occupation varied with the social class composition of the high school was tested by dichotomizing the schools into those which fell above the average between school mean on father's education, and those which fell below. The significance of the difference between the two groups was tested by an F-Ratio, which would be equivalent to a t-test for the difference in means.

Equivalently, the difference between the two groups of schools in average within school slopes of grades on verbal ability was tested. The hypothesis was that the mean within school slope between grades and verbal ability would

be larger in relatively higher status schools. A high status school by this definition is one in which the mean father's education falls above 11.1 years. Although the status measure is not precisely equivalent to the value placed on academic achievement within the school, the variable should be a reasonable proxy.

A final hypothesis provided by Udry was that the within school slope of grades on father's occupation depended on the homogeneity of the school. The variable which most closely approximated this concept was the within school standard deviation of father's occupation. Again, the technique employed was to enter the variable for each school, inspect the distribution, and define a dichotomous dummy variable which took a 1 for every school falling above the between school mean. The significance of the difference between the two groups was tested by the F-value computed for the regression of the dichotomous variable on the within school slope. The technique devised is equivalent to a t-test for the significance of mean differences; additionally, the simplicity of the approach recommends it. Dichotomizing the variables in this fashion allows one to group schools with ease. Information is lost in the process, however. In

order to test the significance of the linear relationships between the size of within school slope, zero-order correlations were also computed.

Table 18 summarizes the results of this analysis. In only one of the three examples did the dichotomy account for a significant portion of the variance in between group slopes. The relationship between the within school slope of grades on father's occupation and heterogeneity of school was confirmed. The schools which were more heterogeneous tended to also have a steeper within school slope between grades and father's occupation. The linear relationship was also positive, although barely significant.

The significance of such a finding is relatively difficult to ascertain. The interactions between the within school slopes of grades on father's occupation seems to be related to heterogeneity of the school, albeit not highly. The hypotheses which were chosen to test were selected for theoretical and substantive reasons. The number of such interactions it would be possible to test is huge, and perhaps one could construct plausible ad hoc interpretations for significant differences. Such a procedure, however,

TABLE 18

SUMMARY OF TESTS FOR SUBSTANTIVE IMPORTANCE OF INTERACTIONS.

Variable - School Level	Mean	S.D.	Proportion of Variance Explained By Dichotomy Chosen	Correlations Between Variables a	b	c	d	e
a) B-weight of V on G	.022	.009	.4%	1.00				
b) B-weight of O on A	.201	.087	6.3	.19	1.00			
c) B-weight of O on G	.001	.0008	12.4	.31	-.11	1.00		
d) Mean Father's Education	11.1	3.6	*	-.03	.12	-.08	1.00	
e) Mean S. D. of Occupational Prestige	14.5	3.8	*	.22	.29	.44	.31	1.00

*Insignificant

seems ccmpletely undesirable and hazardous. The finding of the present example may well be quite spurious, and represent only statistical artifact. The theoretical rationale for differences between schools is not sufficiently sophisticated to warrant such attempts.

A more elegant test for the substantive importance of interactions was proposed by Hauser.[10] The within school slopes were calculated for subroupgs within each school, and the slopes correlated across schools. The presence of consistent or substantively important interactions would be demonstrated if the slopes correlated. The correlations calculated for sex and cohort groups in Nashville schools were very small. Hauser argued that the small associations were indicative of random differences which could not be interpreted. The comparable test with present data was not possible; however, the small differences observed do not seem to indicate large effects.

A final tactic was adopted to test the possible

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[10]Hauser, "Family, School, and Neighborhood Factors in Educational Performances in a Metropolitan School System," Chapter II.

effects significant interactions might have for the present analysis. For each school, the set of four recursive equations needed to complete the basic model were computed. The path coefficients representing the school-level processes involved were tabulated, and the average unweighted effects calculated. The results of this exercise can be described as the average within school effects, although the procedure cannot be justified statistically. Figure 9 presents the results in an illustrative diagram. If effects calculated in this manner are compared to the within school model calculated by the analysis of covariance, the two models are quite similar. No path estimated by averaging the effects across schools deviated by more than .03 from the covariance model. The conclusion would seem to be that although significant interactions are present, which perhaps have some substantive importance, they do not alter or distort the estimation of effects based on the analysis of covariance.

Conclusion

In this chapter the determinants of curriculum placement, aspirations and grades have been explored. The total model based on the complete sample pooled across schools was

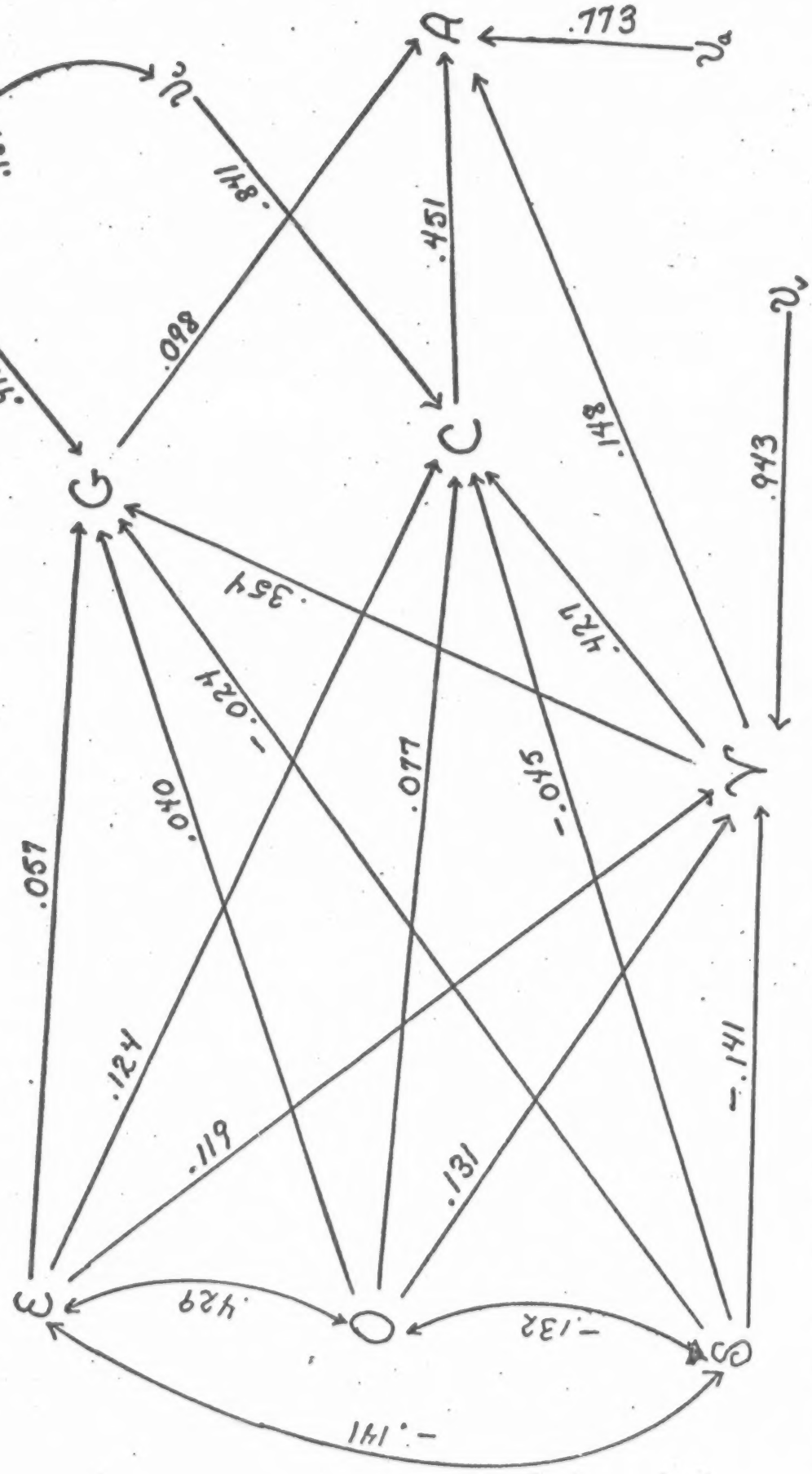

FIGURE 9. WITHIN SCHOOL PATH DIAGRAM FOR TWELFTH GRADE PUPILS. COEFFICIENTS ARE UNWEIGHTED AVERAGES OF RELATIONSHIPS IN FORTY-EIGHT SCHOOLS. (SEE TEXT FOR DEFINITIONS OF VARIANCES.)

presented, and compared to the results obtained for males and for white students separately. The determinants of assignment within schools was analyzed, and the adequacy of the assumptions required for the analysis of covariance tested. The substantive importance of the interactions present were examined and several hypothesis tested for significance. The within school model estimated by the analysis of covariance was contrasted to the simple unweighted averages of effects across schools. The conclusion reached was that the presence of small significant interactions did not alter the pattern of relationships within schools.

CHAPTER V

RACE AND CURRICULUM PLACEMENT

The influence of social class background on curriculum placement was examined in the preceding chapter. In the present chapter, the effects of race and social class will be explored. The process of placement and the determinants of within school stratification will be analyzed; the degree of racial segregation within schools resulting from placement is assessed. The first section shall present the model of placement within schools, calculated only for integrated schools in the present sample. Second differences between schools and interactions will be analyzed. Finally, we shall examine curriculum placement by race for the entire sample.

Curriculum Placement Within Schools

The sample of forty-eight schools selected from the Equality of Educational Opportunity Survey included eighteen schools with more than ten per cent of the student body

non-white; three of these schools had no white students surveyed. The analysis of racial effects within schools was restricted to the fifteen integrated schools, since only the populations in these schools show some variability with respect to race. Separate regressions were computed for each school, and the effects averaged; additionally, the covariance model which assumes no interactions between within school slopes was analyzed.

The fifteen schools to be analyzed were located in thirteen different metropolitan areas and all but two of these schools were located within the limits of the central city; five of the principals defined the school locations as "inner city." All fifteen principals and slightly more than 92 per cent of the teachers in these schools were white. The location, sample size, and proportion non-white in the student body are presented in Table 19. Since no data exists to test the representativeness of either the schools or the students, inferences to all integrated schools are limited. The schools constitute the total populations of four-year urban high schools located in the North, with racial composition varying between 10 and 98 per cent non-white, surveyed by the Equality of Educational Opportunity. Since few studies

TABLE 19

INTEGRATED SCHOOLS

LOCATION BY SIZE AND PROPORTION WHITE

School Location	No. of Twelfth Graders	Proportion White
Mid-Atlantic		
Atlantic City, N. J.	602	.72
Baltimore, Md.	423	.61
Newark, N. J.	320	.22
New York City	193	.50
Philadelpha, Pa.	531	.89
Washington, D. C.	392	.88
Wilmington, N. J.	192	.74
Great Lakes		
Canton, Ohio	624	.70
Detroit, Mich.	105	.52
Evanswille, Ind.	263	.74
" "	145	.87
Milwaukee, Wis.	361	.86
Plains		
Omaha, Neb.	212	.69
Far West		
Bakersfield, Calif.	461	.69
" "	478	.68
Total Sample	6,459	.68

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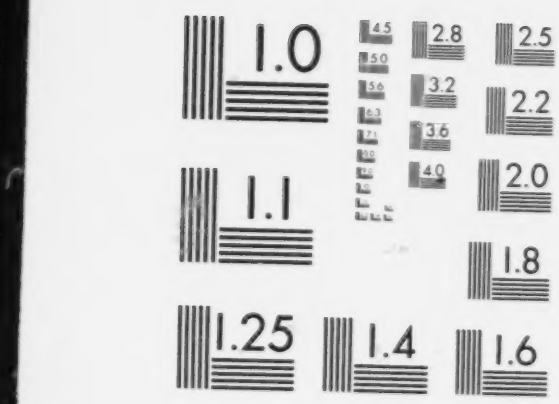

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

TABLE 20

TWELFTH GRADE

MEANS AND STANDARD DEVIATIONS OF VARIABLES FOR TOTAL POOLED SAMPLE AND PROPORTIONS OF VARIANCE BETWEEN SCHOOLS

INTEGRATED SCHOOLS

Variable	Mean	S.D.	$[E^2_{xy}]$ Proportion Variance Between Schools
Race	.682	.465	12.806
Verbal Ability	35.702	13.479	23.632
Father's Occupation	54.272	18.959	12.841
Father's Education	11.575	3.541	11.594
No. of Siblings	2.971	2.354	6.313
Grades	3.423	.896	3.510
Curriculum Placement	.525	.499	12.893
Aspirations	15.116	2.245	13.861

Students who responded to any choice other than B were coded non-white; the non-white sample, in this case, was 88 per cent Negro. Race was coded as a dummy variable, for the purpose of analysis, grouping all non-whites together.

The procedure was quite similar to the analysis of the determinants of social class background. Table 21 presents the zero-order correlation matrix for all students without regard to school; additionally, the within school correlation matrix, calcualated by the method outlined in Chapter II, is presented in Table 22. The correlation matrices for each school separately are presented in the Appendix. The standardized regression coefficients for several alternative equations are presented in Table 23. The model of curriculum placement including race for the complete pooled sample of integrated schools is presented in Figure 10. The inclusion of race substantially increases the explanatory power of background characteristics on verbal ability. The unique effects of race are larger than any other single measure of social class, accounting for 6.8 per cent of the variance, and slightly more than one-fourth of the total variance explained. The effects of race

TABLE 21

TWELFTH GRADE ZERO-ORDER CORRELATION MATRIX

TOTAL POOLED SAMPLE FOR FIFTEEN
INTEGRATED HIGH SCHOOLS

	V	O	E	S	G	C	A	R
Verbal Achievement	1.0000	0.3598	0.3407	-0.3020	0.3641	0.5657	0.4891	0.3915
Father's Occupation		1.0000	0.5386	-0.2282	0.2082	0.3200	0.3296	0.3003
Father's Education			1.0000	-0.2313	0.2119	0.3332	0.3503	0.2331
No. of Siblings				1.0000	-0.1506	-0.2459	-0.2214	-0.3314
Grade					1.0000	0.3018	0.3016	0.1609
Curriculum						1.0000	0.5765	0.2048
Aspirations							1.0000	0.1410
Race								1.0000

TABLE 22

TWELFTH GRADE WITHIN SCHOOL CORRELATION MATRIX

FIFTEEN INTEGRATED SCHOOLS

	V	R	O	E	S	G	C	A
V) Verbal	1.0000	.3219	.2375	.2263	-.2352	.3611	.4931	.3974
R) Race		1.0000	.2352	.1610	-.3163	.1472	.1414	.0652
O) Father's Occupation			1.0000	.4782	-.1692	.1788	.2326	.2392
E) Father's Education				1.0000	-.1812	.1854	.2560	.2737
S) No. of Siblings					1.0000	-.1258	-.1855	-.1623
G) Grades						1.0000	.2810	.2757
C) Curriculum							1.0000	.5218
A) Aspirations								1.0000

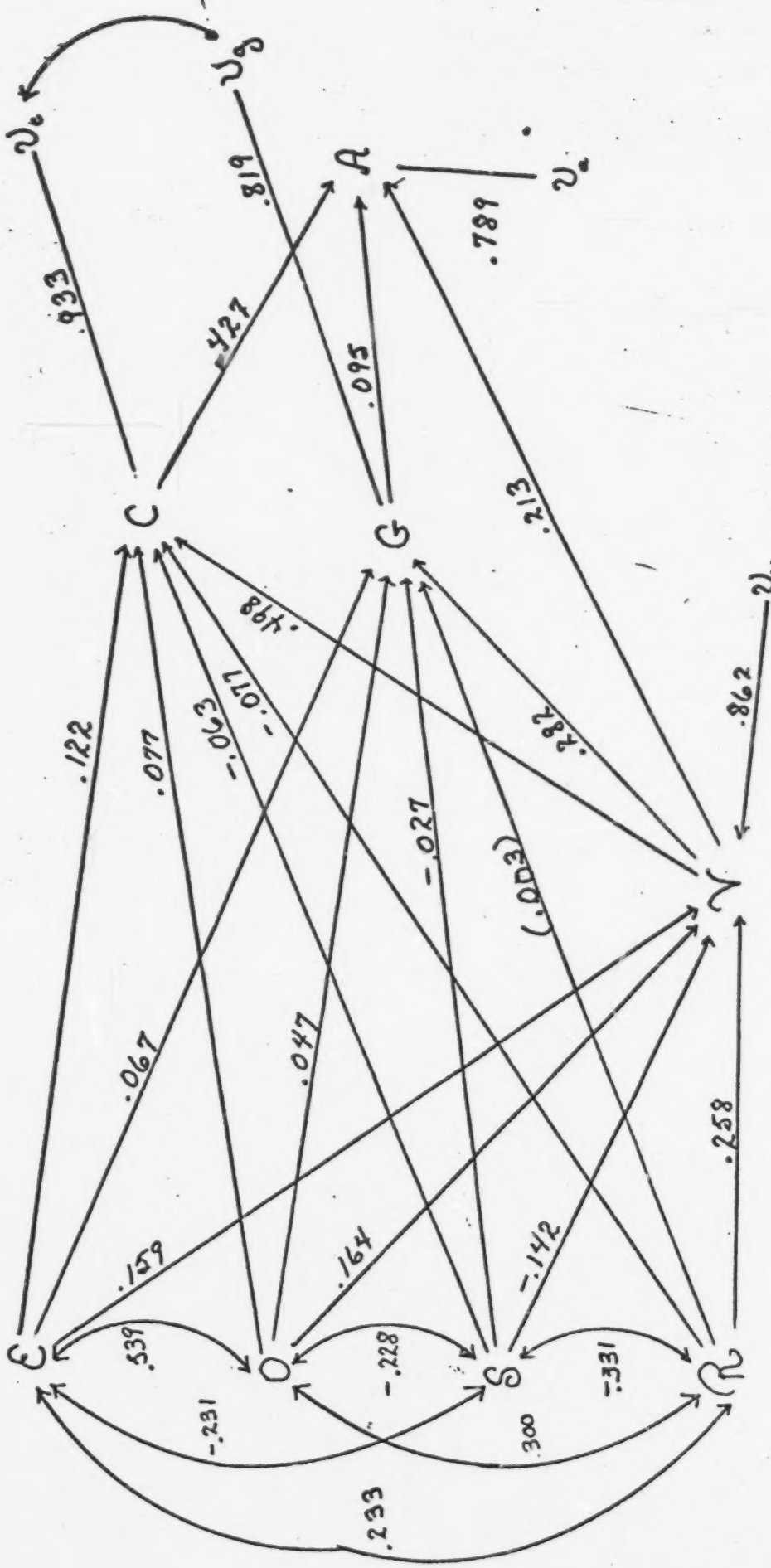

FIGURE 10. PATH DIAGRAM FOR THE COMPLETE MODEL COMPUTED FOR TOTAL SAMPLE OF TWELFTH GRADE STUDENTS ENROLLED IN FIFTEEN INTEGRATED HIGH SCHOOLS. (SEE TEXT FOR DEFINITION OF VARIABLES.)

TABLE 23

STANDARDIZED BETA COEFFICIENTS FOR THE DETERMINATION OF VERBAL ABILITY, GRADES, CURRICULUM AND ASPIRATIONS, TOTAL SAMPLE OF FIFTEEN INTEGRATED SCHOOLS

EQUATION	INDEPENDENT VARIABLES INCLUDED								R^2
	O	E	S	R	V	G	C	A	
V on O,E,S	.217	.175	-.212						.202
V on O,E,S,R	.164	.159	-.142	.258					.257
C on O,E,S	.175	.202	-.152						.163
C on O,E,S,R	.162	.198	-.142	.063					.166
C on O,E,S, R,V	.080	.118	-.071	-.066	.501				.352
C on O,E,S,R, V,G,A	.037	.059	-.044	-.024	.336	.049		.359	.448
G on O,E,S	.119	.126	-.094						.066
G on O,E,S,R	.103	.122	-.073	.077					.071
G on O,E,S, R,V	.051	.071	-.029	-.004	.314				.144
G on O,E,S,R, V,C,A	.032	.045	-.015	.015	.229		.074	.115	.161
A on V,C,G					.213	.095	.427		.379
A on V,C,G,R				-.053	.234	.096	.426		.382
A on O,E,S,R	.182	.224	-.131	-.009*					.166
A on O,E,S,R, V,C,G,A	.078	.106	.042	-.091	.199	.082	.387		.405

* Beta coefficient less than twice standard error of b-weight.

on curriculum are positive, demonstrating a net advantage to white students, until verbal ability is entered into the equation. As Figure 10 illustrates, the direct effects of race on curriculum placement are negative once student's ability level is taken into consideration. The proportion of variance in curriculum explained by race is not large, smaller in all cases than any other background variable; however, the direction of the effect is noteworthy. The data indicates that non-white students are more likely to be placed in a college preparatory curriculum than white students of comparable social class background and verbal ability.

The primary importance of verbal ability in the prediction of both grades and curriculum is also evident from Figure 10. The direct effects of verbal ability account for 25 per cent of the variance in curriculum, and nearly 10 per cent of the variance in grades. The effects are decomposed in Table 24.

TABLE 24

EFFECTS OF SOCIAL CLASS AND VERBAL ABILITY ON CURRICULUM AND GRADES, POOLED SAMPLE OF INTEGRATED SCHOOLS

	Social Class	Race	Verbal Ability	Total Joint
Curriculum	.026	.004	.250	.072
Grades	.008	*	.099	.037

*Insignificant

The conclusion that social class is not strongly related to placement or grades is relatively unambiguous. It would seem that integrated schools are no more likely to discriminate in favor of advantaged students than all schools studied, and that the effects of race are trivial.

The consequences of curriculum placement in the postulated model are large. The relationship between background and aspirations is relatively trivial when curriculum placement is introduced as an intervening variable. The direct effects of curriculum placement are large, accounting for slightly over half of the total variance explained.

Several studies,[1] including the original analysis by Coleman, have found that non-white students aspire to continue their education beyond what would be predicted on the basis of test scores. The non-white students in the present sample do not aspire to more education than white students of comparable background; however, when verbal ability is included, the effects of race do favor non-whites to some extent.

The within school model of curriculum placement, calculated for students in the fifteen integrated schools, is presented in Figure 11. The path coefficients for the within school model were estimated by techniques equivalent to the analysis of covariance, as described in Chapter III. The covariance model assumes the within school slopes are equal; tests for the significance of interactions were computed for the basic equations utilized and are presented in Table 24. The method again involved adding the sums of

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[1] R. P. Boyle, "The Effect of the High School on Students' Aspirations," American Journal of Sociology, LXIII (1966), 582-639; Daniel Armor, "The Racial Composition of Schools and College Aspirations of Negro Students," Appendices, Racial Isolation in the Public School, U.S.Commission of Civil Rights, II, Appendix C2 (Washington, D.C.: U. S. Government Printing Office, 1967), pp. 143-165; Nancy St. John, "De Facto Segregation and Interracial Association in High School," Sociology of Education, XXXVII (1964), 326-344.

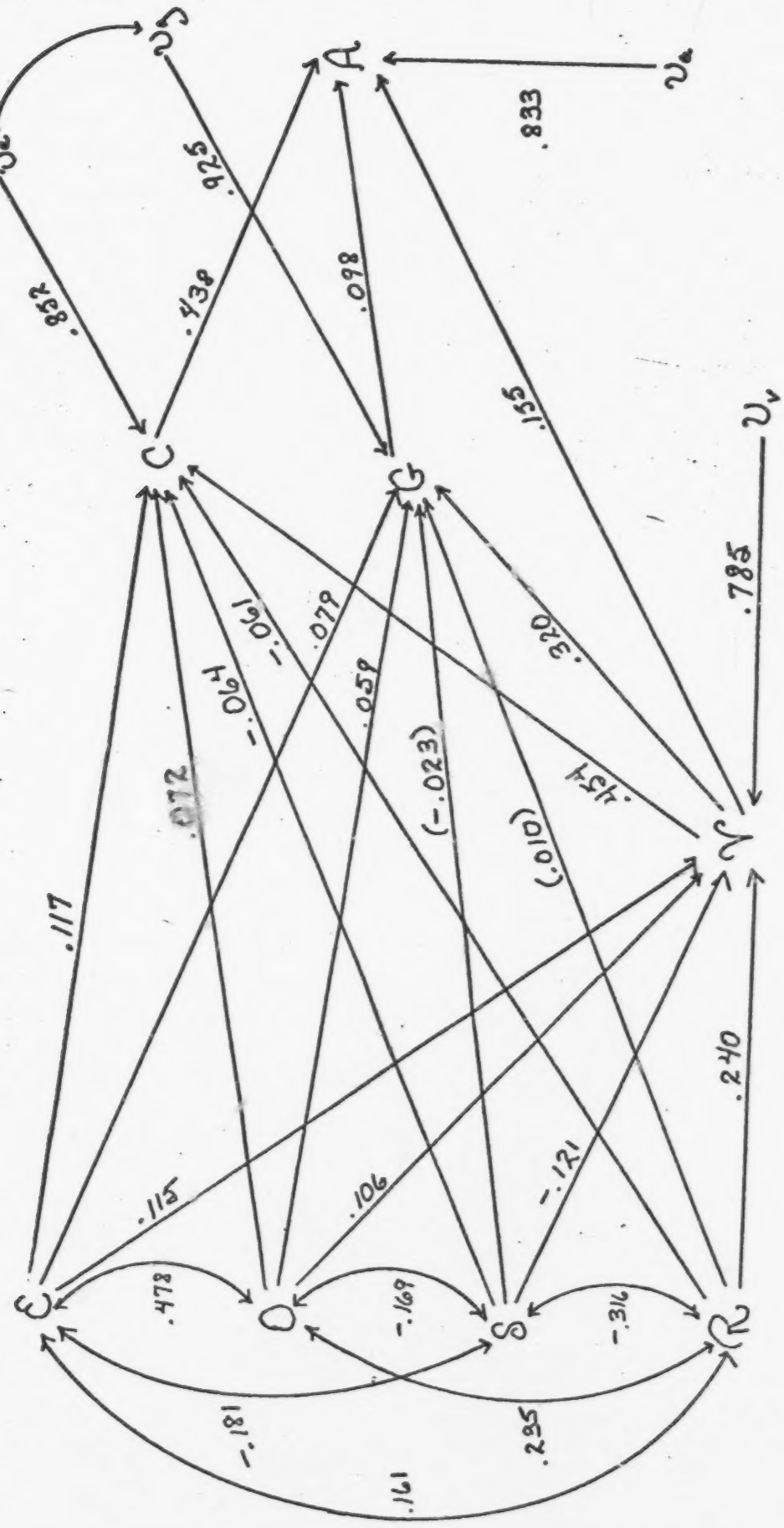

FIGURE 11. WITHIN SCHOOLS PATH DIAGRAM FOR THE COMPLETE MODEL COMPUTED FOR TWELFTH GRADE STUDENTS ENROLLED IN FIFTEEN INTEGRATED HIGH SCHOOLS. (SEE TEXT FOR DEFINITION OF VARIABLES.)

TABLE 25

PROPORTION OF VARIANCE EXPLAINED BY CALCULATING SEPARATE WITHIN SCHOOL SLOPES, WITHIN SCHOOLS MODEL, AND VARIANCE ADDED DUE TO INTERACTIONS

INTEGRATED SCHOOLS

REGRESSION EQUATION	R^2 FULL	R^2 RESTRICTED	R^2 SCHOOL EFFECTS	PROPORTION ADDED
V on O,E,S	.124	.292	.236	6.8%
V on O,E,S, R	.174	.356	.236	5.5
C on O,E,S	.159	.256	.129	3.2
C on O,E,S, R	.174	.280	.129	2.3
C on O,E,S, V	.240	.328	.129	4.1
C on O,E,S, V,R	.254	.362	.129	2.1
A on C,V,G	.403	.507	.139	2.5
A on C,V,G, R	.416	.528	.139	2.7
A on O,E,S, R	.226	.324	.139	3.1
A on O,E,S, R,C,V, G	.424	.531	.139	2.2

squares explained in the individual school regressions and comparing the proportion of variance added by interactions. Since the sample of students involved is large, each F-ratio computed was significant. The additional variance, although significant, never exceeds 6.8 per cent of the total. The largest interactions present are in the determination of verbal ability. The substantive importance of interactions among the present sample of schools is problematic. It seems not unlikely that interactions are in part due to racial composition of school. The largest effects are present when verbal ability is regressed, which also has the strongest net association with race. In the case of all dependent variables, the proportion of variance due to interactions decreases when race is included in the equation. With these considerations in mind, an analysis of interactions equivalent to that presented in Chapter IV was foregone. Several within school slopes were utilized to test the effects of racial composition, however, and they will be discussed when the analysis focuses on differences between schools.

The standardized beta coefficients, net of school effects, are presented in Table 25. The within school path

TABLE 26

STANDARDIZED BETA COEFFICIENTS FOR THE DETERMINATION OF VERBAL ACHIEVEMENTS, GRADES, CURRICULUM AND ASPIRATIONS, NET OF SCHOOL EFFECTS

FIFTEEN INTEGRATED SCHOOLS

EQUATION	INDEPENDENT VARIABLES INCLUDED								R^2
	O	E	S	R	V	G	C	A	
V on O,E,S	.138	.113	-.170						.318
V on O,E,S,R	.099	.107	-.109	.225					.356
C on O,E,S	.129	.169	-.128						.214
C on O,E,S,R	.120	.168	-.115	.048					.216
C on O,E,S, R,V	.072	.116	-.062	-.061	.485				.368
C on O,E,S,R, V,G,A	.035	.058	-.037	-.018	.329	.050			.460
G on O,E,S	.113	.124	-.084						.085
G on O,E,S,R	.097	.121	-.062	.092					.092
G on O,E,S, R,V	.062	.083	-.023	.011	.360				.175
G on O,E,S,R, V,C,A	.045	.056	-.011	.030	.279		.075	.118	.193
A on V,G,C					.165	.414	.097		.403
A on V,G,C,R				-.065	.187	.412	.099		.407
A on O,E,S,R	.134	.191	-.110	-.034					.226
A on O,E,S,R, V,G,C,A	.064	.099	-.043	-.098	.170	.381	.084		.424

coefficients were computed from these values for the recursive equations specified in Figure 11. The within school model does not alter the basic findings discussed for the pooled sample. The effects of social class background on curriculum placement are relatively small when verbal skills are entered into the equation. The decomposition of within school effects on curriculum and grades is presented in Table 27. The general pattern of relationships are quite similar. The effects of background are relatively less important, while the effects of intervening within school variables on aspirations are slightly magnified. The direct effects of verbal ability decrease within schools.

TABLE 27

DECOMPOSITION OF VARIANCE EXPLAINED BY SOCIAL CLASS RACE, AND VERBAL ABILITY, INTEGRATED SCHOOLS

	Social Class	Race	Verbal Ability	Total Joint
Curriculum	.0230	.0037	.2061	.0417
Grades	.0103	.0001	.1024	.0322

The unique effects of verbal achievement account for slightly less than two-thirds of the total within school variance explained in curriculum; the determination of grades is also largely due to the direct effects of verbal achievement.

The within school effect of race on curriculum is of particular interest, since it is not in the direction hypothesized. A negative coefficient represents a net advantage accruing to non-white students in placement, when verbal ability is controlled. Several alternative explanations seem plausible. If the small effect is real, it suggests that non-white students were being assigned to a college preparatory curriculum despite ability differences. Perhaps counselors or administrators tended to assign the best non-white pupils to the college track, even though their tested ability was less. It is conceivable that the awareness of racial discrimination resulting from the civil rights movement sensitized school officials to the situation of non-white pupils; perhaps as early as 1965, militant black students were demanding placement in college curricula. An alternative explanation, which does not depict schools as

quite so responsive, would be that ability was still the prime determinant of placement. Non-white ability, however, was not as adequately measured by standardized test scores as that of whites. While there is evidence that suggests a cultural bias to test scores,[2] the argument is usually made that this results in down grading non-white pupils.[3] No study to my knowledge finds evidence of results favorable to non-white pupils net of differences in test scores. Nor do most studies of racial differences suggest American institutions discriminate in favor of non-whites.

The possibility also exists, it should be noted, that the observed relationship is spurious. It is possible that non-white students systematically exaggerated their actual placement. The argument has frequently been made that non-white aspirations are overstatements, or at least illusions. There is no reasonable method of checking this

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[2] A. Anastasi (ed.), Testing Problems in Perspective, (Washington: American Council on Education, 1966).

[3] Kenneth Polk, "Tracking in Public High Schools," Trans-action, Vol. 7, No. 9 (October, 1970).

possibility with the data at hand; nor do we have race-specific reliabilities from comparable analyses. However, the equations within each school exhibit a similar pattern for every integrated school studied. The coefficient for race in the equation regressing curriculum placement on background and ability was negative in every school, and the coefficient was larger than the standard error in all but two of the smaller schools. The effect of race is not large, but it would seem to be quite consistent. Whether it represents an actual tendency for non-white pupils to be favored in tracking within schools is difficult to say. At least one conclusion seems quite tenable; curriculum assignment is not racially discriminatory in the present sample of schools when verbal ability level is controlled. Racial segregation between curricula within schools would seem to result from ability differences rather than policy or discrimination. This finding sharply contradicts recent polemics on the subject of race and tracking.[4]

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[4] Ibid.; Hobson v. Hansen, 269 F.Supp., 401 (1967), pp. 405-518.

Curriculum Placement Between Schools

Several intrinsically interesting questions concerning the racial composition of the school and processes with schools deserves attention. The interactions between race and placement, achievement, and aspirations within schools have been alluded to earlier. In the present section we will analyze the differences among the fifteen schools selected for analysis. Several authors have concluded that the aspirations of non-whites are more "realistic" when they attend integrated schools.[5] While this finding cannot be challenged with the present data, we will explore two possible reasons for the observed differences; the implicit argument is that non-white students are more aware of the achievement gap between races when confronted with white students in the classroom, or, alternatively non-white aspirations depend on a sizeable majority of other students of the same race enrolled in the school. These two notions can be explored, albeit crudely, by comparing schools in

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[5] Armor, "The Racial Composition of Schools and College Aspirations of Negro Students," pp. 143-165.

the present sample. The comparative advantage of non-white students in placement will be analyzed, and possible explanations entertained with respect to racial composition. Since we are limited to a comparison of fifteen schools, the analysis cannot control for a variety of variables simultaneously. The technique adopted is quite comparable to the analysis developed in Chapter IV. The linear relationship will be described first; second we will analyze the significance of the relationships analyzed by arbitrarily grouping schools and presenting F-ratios for the significance of relationships.

The variables in the analysis are of two types (a) school means and (b) within school slopes, or unstandardized regression coefficients calculated from within school equations. The school means include mean verbal ability, mean proportion assigned to a college track, mean aspirations, and proportion white in the school. Three within school slopes or the coefficients of race in three within school multiple regressions were calculated. They include the coefficient in the following equations:

$$V = O + E + S + R \qquad \text{[Eq. 14]}$$

$$A = O + E + S + R \qquad \text{[Eq. 15]}$$

$$C = O + E + S + V + R \qquad \text{[Eq. 16]}$$

The partial slope in the first equation we have defined as the "verbal gap," since it represents the net increment in verbal score attributed to white pupils after social class background is controlled. The coefficient in equation two is defined as the "aspirations gap," for similar reasons. The coefficient in equation three is termed "discrimination gap," since it represents the magnitude of the race effect on curriculum, net of verbal ability and social class.

These six variables were each trichotomized in order to test for non-linear effects as well. The sums of squares explained by entering two dummy variables were compared with both the zero-order linear relationship. No alternative measure made the relationship significant when it would not otherwise have been so. The correlations obtained when computed on a three point scale were also typically smaller, but will be presented as the measures of association tested. It should be remembered that the two-tailed test of significance for a correlation based on fifteen cases, calculated by

$$F_{.975} = \frac{r^2(n-2)}{1 - r^2} \qquad \text{[Eq. 17]}$$

yields a minimum value of .514 for a zero-order correlation to be significantly different from 0.

Table 28 presents the means, standard deviations, and complete correlation matrix for eight variables examined. The size of the senior class is the final variable examined.

The hypothesis to be tested can be summarized:

A) That the "verbal gap" in a school would be inversely related to the "aspirations gap"; that is, schools in which non-whites were further behind in verbal skills, non-whites would downgrade aspirations. The mechanism would explain why studies have found lower aspirations for non-whites in integrated schools than in segregated schools.

B) That the proportion white in a school would be inversely related to the "aspirations gap"; that is, non-white students would form higher aspirations in a more "supportive" environment, in which there were higher proportions of non-white pupils.

C) That the degree of pro-discrimination for blacks would be positively related to the proportion of white in the school, and positively related to the aspiration

TABLE 28

MEANS, STANDARD DEVIATIONS, AND BETWEEN SCHOOL CORRELATIONS

	VG) Verbal Gap	D) Discrim.	AG) Aspirations Gap	$\overline{C}$) Curr. Mean	$\overline{V}$) Verbal Mean	$\overline{W}$) Per Cent White	$\overline{A}$) Mean Aspirations	SZ) Size	Mean	S.D.
VG)	1.0000								5.27	3.05
D)	-.5697	1.0000							-.054	.07
AG)	-.2679	.8055	1.0000						-.453	.59
$\overline{C}$)	.0523	.0524	.0760	1.0000					.470	.22
$\overline{V}$)	.1661	-.0455	-.0430	.9122	1.0000				32.980	11.23
$\overline{W}$)	.0437	.1917	.0876	.6686	.7963	1.0000			.664	.22
$\overline{A}$)	-.4967	.2063	.2817	-.1113	-.3988	-.2482	1.0000		15.377	1.53
SZ)	.0294	.1736	.1722	.4114	.2955	.1782	.1019	1.0000	355.933	164.93

aspiration gap. That is, in schools in which the aspirations gap was low, a low racial coefficient on curriculum placement would result, suggesting perhaps that schools respond to high aspirations in non-whites through tracking.

Table 29 summarizes the sums of squares explained for the four proportions, for the linear relationship and for the trichotomy. All of the relationships were in the postulated direction; however, only one relationship was significant. The only association which is strongly related is the degree of pro-discrimination for non-whites, or the racial advantage, and the aspiration gap. This suggests that the more non-whites exceed whites in aspirations within schools, the more likely are they to be advantaged in placement. This could be due to either a consistent tendency for schools to respond to high aspiration in non-whites, or perhaps systematic overestimation of non-whites to the aspirations and placement questions within schools. The per cent white in the schools is strongly related to no other variable examined, except the mean verbal score and proportion college prep. The "verbal gap" is negatively related to

TABLE 29

PROPORTION VARIANCE EXPLAINED

	Total Relationship (15 Categories)	Trichotomy of Both Variables (3 Categories)
A) Verbal Gap and Aspirations Gap	.1094*	.0772*
B) Per Cent White and Aspirations Gap	.0077*	.0411*
C) Racial Advantage and Per Cent White	.0367*	.0210*
D) Racial Advantage and Aspiration Gap	.6488	.4468

*Insignificant

the degree of racial advantage, which suggests that the more closely matched are white and non-white students within schools in verbal ability, the less pro-discrimination for non-whites is found. This could also be a function of the reliability of verbal scores within schools. If one assumes students are tracked by a more general measure of ability than one test, the "verbal gap" may not measure the actual differences between whites and non-whites within the school, while the racial advantage results from a more accurate assessment by counselors; the degree of association resulting would reflect only that our measure of "verbal gap" overestimated the actual spread of scores. The "aspirations gap" does not seem strongly related to either the proportion non-white in the school or the disparity between whites and non-whites in ability. This suggests that more subtle mechanisms are at work in the formation of aspirations than either relative ability level or degree of integration. The "aspirations gap" is more related to the mean aspirations level in the school than to either racial composition or "verbal gap," however insignificantly.

The variables defined relate to school characteristics, not those of individuals. Since we are only dealing with a

small non-random sample of schools, inferences are quite limited. The pursuit of school characteristics seems in this case to be relatively futile, especially since the effects noted are relatively trivial in magnitude.

Race, Ability and Placement

One further analysis was undertaken, which included all the twelfth grade students in the sample, pooled across all schools, rather than relationships in integrated schools alone. For whites and non-whites separately, curriculum placement was regressed on ability, and social class. Table 30 presents the results, including both the standardized and unstandardized regression coefficients. The objective was to examine the relationship between curriculum and placement for each race, and compare the relative advantage to non-whites at different ability levels. Figure 12 contrasts the zero-order relationship between placement and ability by race. The racial differences discussed are more clearly illustrated when comparing slopes. Non-whites at each ability level are slightly more likely to be placed in a college prep curriculum, but the relative advantage narrows as ability scores increase. The relative advantage is greatest when

TABLE 30

REGRESSION COEFFICIENTS OF CURRICULUM PLACEMENT ON VERBAL, BACKGROUND

TOTAL SAMPLE BY RACE

	V	O	E	S	R^2
White, Raw Form					
C on V	.022				.292
C on O,E,S		.005	.032	-.038	.148
C on V,O,E,S	.019	.003	.017	-.020	.331
Non-White, Raw Form					
C on V	.017				.213
C on O,E,S		.003	.023	-.019	.084
C on V,O,E,S	.016	.002	.018	-.011	.248
White, Standardized					
C on V	.540				.292
C on O,E,S		.208	.172	-.148	.148
C on V,O,E,S	.461	.101	.114	-.078	.331
Non-White, Standardized					
C on V	.462				.213
C on O,E,S		.112	.175	-.109	.084
C on V,O,E,S	.417	.060	.133	-.060	.248

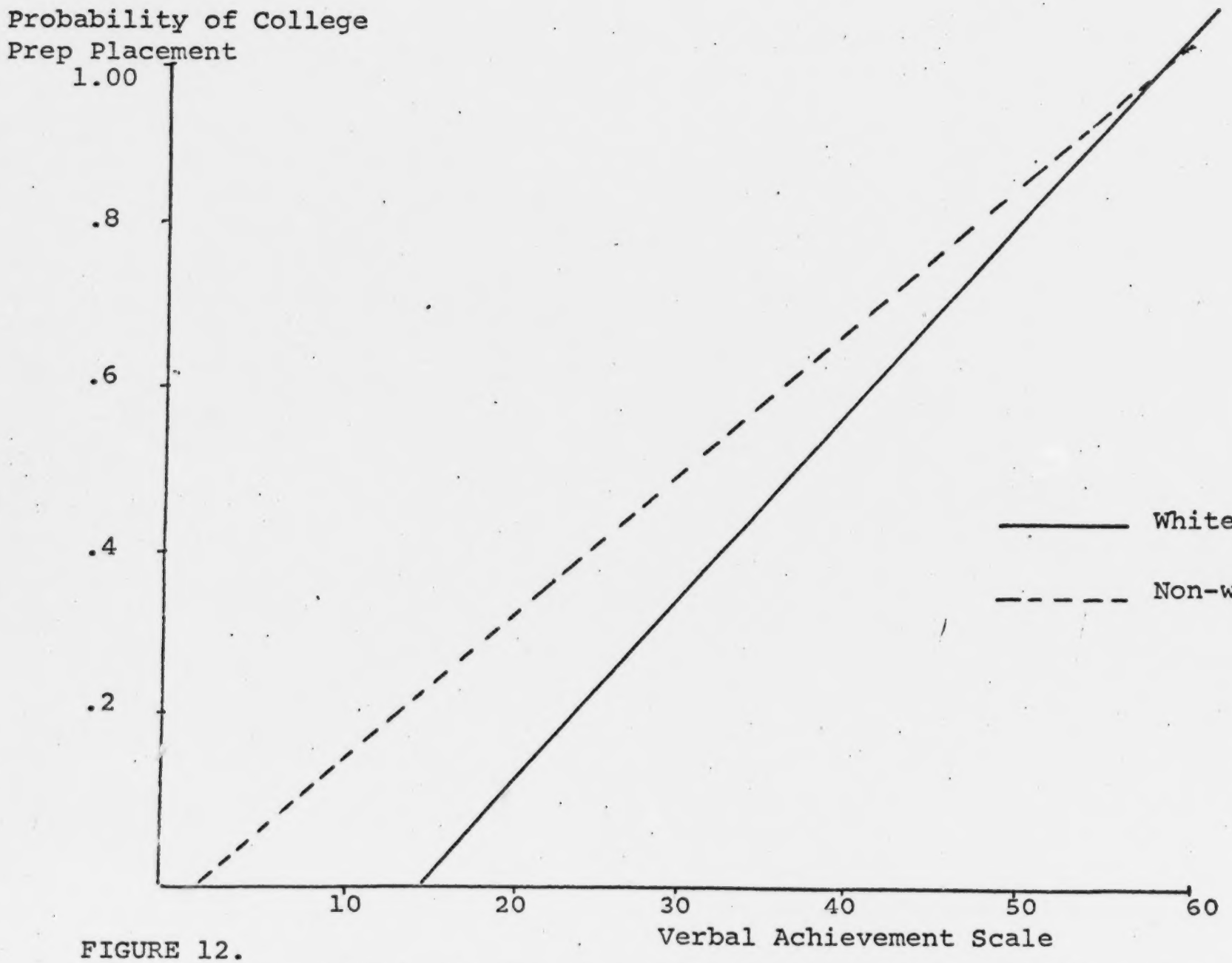

FIGURE 12.

REGRESSION SLOPES OF CURRICULUM PLACEMENT ON VERBAL SCORE SEPARATELY BY RACE.

ability scores are quite low. The mean non-white scores is 28.3, compared to a white mean of 38.9, which is a sufficiently large gap to explain the racial advantage. If ten points were added to non-white scores, as a credit for "cultural bias" in ability tests, white students at every ability level except the very lowest would have an advantage. One would wonder why non-white students received less return for ability than white pupils in placement probabilities. Perhaps this is a more fruitful approach to the study of racial differences in schools, at least until we are relatively more certain that the metrics of ability are comparable between races.

Conclusions

The present chapter has examined the relationship between placement and race in the fifteen integrated schools. Within school relationships have been compared, and an analysis of differences between schools undertaken. The finding that non-white pupils were advantaged has been discussed from a variety of perspectives. The general conclusion would seem to be that racial discrimination in placement is not

prevalent in the sample of high schools studied, and perhaps curriculum assignment for non-white students is based on "ability" which verbal achievement tests do not adequately measure.

CHAPTER VI

CURRICULUM ASSIGNMENT AND COUNSELORS

In the present chapter the role of counselors in relationship to assignment is explored. The rationale and relevance of counseling in the high school is examined, and the implications for grouping are discussed. The variables dealt with in the present study are described. The focus of the analysis is on the determinates of access tc counselors and encouragement;the relationships between background, ability and counseling are of special importance.

The High School Counselor in Context

The role of the counselor in high schools is relatively recent and still ambiguous in many cases. With the growth in size and diversity of educational institutions, a counselor or a counseling staff has developed within schools, with often autonomous decision-making powers. As Corwin states,

> School counselors perform a key coordinating role insofar as students are concerned. Teachers request

> counselors to transfer undesirable students from their classes, and students ask that they be transferred into an easier course or one at a more convenient hour. Attendance officers also assist with coordinating students' schedules. They trace down a student who is absent from classes, and they may rule on the eligibility of students to participate in curricular and extracurricular activities.[1]

School counselors serve, as Cicourel and Kitsuse put it, as "validating agent"[2] and both evaluate and plan vocational choices and careers. Counselors write letters of recommendation, evaluate test results, give advice, and often have disciplinary or academic sanctions at their disposal in the authority structure of the high school. In the school which Cicourel and Kitsuse studied, the role of the counselor was largely determinate in curriculum assignment, even though students in principle had options and choices. Counselors were responsible for classifying students, and identifying individual problems. Cicourel and Kitsuse argued that often discrepancies between tested ability and performance were

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[1] Ronald Corwin, A Sociology of Education (New York: Appleton-Century-Crofts , 1965),p. 22.

[2] Aaron V. Cicourel and John I. Kitsuse, The Educational Decision-Makers (New York: The Bobbs-Merrill Company, Inc., 1963).

defined as "problems," such as "underachievers." The problem was perceived as that of the individual, not due to lack of reliability or validity in the test instrument. Behavior problems implied lack of adjustment,not boredom with school, or classes.

While counselors are nominally expected to advise students, and provide them with information, the professionalization of the guidance counselor has more often involved evaluation of students, and interpreting standardized tests, as well as advising. Corwin argues that the role of confidant or trusted older friend is conflicted when the person also has power and authority over decisions which effect futures, and is expected to evaluate student potential.[3] The nature and relationship of a particular counselor to students is no doubt largely a function of the structural arrangement in the high school, and the allocation of responsibility. Armor's analysis of counseling conducted with Equality of Educational Opportunity Survey data showed some

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[3]Corwin, A Sociology of Education, p. 22.

consistent differences between schools with respect to accessibility of counselors.[4] Schools in metropolitan areas, and in schools outside of the South and Southwest typically had more guidance counselors per student than those located in rurual areas or in the South. Using a procedure of averaging the number of full-time-equivalent guidance counselors per student on the basis of school enrollment and racial composition, the analysis showed that urban Negro students in every geographical strata had a lower student/counselor ratio than white students, which would imply that Negro students were not disadvantaged with respect to access. Armor also argued that the counselor's task was to increase the correlation between ability and aspirations of students. Comparing students by sex, race, location, racial composition of high school, and presence of a Negro counselor; the correlations between reading comprehension and college plans were typically higher for students who had seen a counselor two or more times during the last year, than for those who had not.

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[4]David Armor, Chapter 8.3, EEOS, pp. 529-544.

The definitive sociological study of the counselor has yet to be written; the present study shall concentrate on only two aspects of students' relationships to counselors, the self-reported number of visits to counselors, and the amount of positive perceived encouragement to continue educational training. Counseling in the present framework is viewed as a service to students, and a logical mechanism through which selection and placement occur. The counselor also frequently has information and application forms for college, knowledge of scholarships and other competition for funds and admission. While the counselor's recommendation to college may not insure admission, it may influence the marginal case, particularly if the counselor has recommended good students in the past. Counseling is, in one sense, a resource which schools provide to students; the allocation of a counselor's time and the amount of encouragement offered are in some sense a measure of the school's investment in the student's future. If the counselor differentially allocated his time or encouragement to students based on the social class or race of the student, one would argue that the counseling process within the school was discriminatory to some degree. Since counseling is also a process of selection,

one would expect the counselor to encourage bright students to attend college more often than he would encourage less talented pupils. Perhaps the counselor should also discourage students who do not have the family resources to finance an expensive education; while the encouragement outcomes of counseling might show positive effects for social class, perhaps the counselor was oriented towards the reality of the costs of education. The present analysis will concentrate on the determinants of access to counselors, and perceived encouragement. The focus will be two-fold: on counseling as a mechanism for selection, and on counseling as a school resource differentially allocated to students. The two perspectives are not unrelated, and both have implications for assignment to a college preparatory curriculum.

The Variables and the Strategy

Seniors surveyed in the Equality of Educational Opportunity Survey were asked two questions about counseling which will be treated in the present analysis. The questions and percentage distribution of responses is given below.

TABLE 31

QUESTIONS AND PERCENTAGE DISTRIBUTION OF RESPONSES REGARDING COUNSELING

1) How many times did you talk to a guidance counselor last year?

	Response
A) Never	11.01%
B) Once	16.58
C) Two or three times	44.05
D) Four or five times	17.34
E) Six or more	10.99
$\bar{x}$	2.49
S.D.	1.79

(N = 14,807)

2) Has your teacher or counselor encouraged you to take further training after high school?

A) Yes, to go to college	53.09%
B) Technical, business or other training	22.41
C) No	24.50
$\bar{x}$	2.33
S.D.	.84

(N = 14,884)

Unfortunately we have no data from either the principal's questionnaire or teacher's responses to determine who served as counselor, or the nature of the role within the context of the school. The principal's were asked how many counselors were employed by the school, but it is not clear from the responses whether the role of counselor was autonomous within the school or whether a teacher actually did most of the counseling. Data on counselors was restricted to information teachers provided, and only for those teachers who stated that they spent more than six hours per week counseling students. It is unclear what the formal or informal structure of the counseling service entailed. The number of counselors reported by the principal correlated quite highly with the total number of students enrolled ($r = .77$), across the forty-eight schools studied. For these reasons, the data to be analyzed was restricted to student responses regarding counseling. All principals in the present sample of schools reported at least one full-time equivalent counselor. Although the question asked students regarding encouragement specified either a counselor or a teacher, the counselor often serves both roles. I shall continue referring

to a counselor, although some students may have intended counseling which was not limited to a professional staff.

The relationships to be examined are between curriculum placement, verbal ability, grades, social class background, and race. We would like to assess the relative magnitude of the various variables in predicting the accessibility of the counselor and the amount of encouragement offered to students. Ordering the variables in a causal sequence presents some difficulty, since the relationships between grades, ability, placement, and counseling are not temporally distinct. The tactic proposed is to assess the relative importance of background variables and verbal ability in predicting encouragement and number of visits to the counselor, and then entering the intervening variables such as grades and curriculum. The logic is that if the social class background variables are not directly related to access or encouragement, the effects of differences in placement, or grades, should reduce the relationships substantially. If the background variables persist, then we can conclude that counseling is differentially allocated within schools on the basis of social class. Secondly, we shall examine the relative magnitude of the determinants of

both accessibility and encouragement. If the student's curriculum placement is trongly related to either frequency of contact with counselor or the amount of encouragement received, when ability, and grades, are controlled, the conclusion seems tenable that curriculum placement is a mechanism of differential allocation of school services, at least the school resource of counseling and advice. The postulated model is presented diagramatically in Figure 13. The arrows in the model should not be interpreted as literally causal, since the variables cannot be unambiguously ordered. The model is presented only to demonstrate the direction of the present analysis when assessing the determinants of counseling. The paths of prime concern are shown in Figure 13 as the dotted lines between background and counseling. We have argued in Chapters IV and V that background effects, such as social class and race, were only slightly related to experiences in school, once verbal ability was controlled. These paths are not included in Figure 13, although the effects are not zero.

The zero-order correlations are presented in Table 32, for the entire sample of students. The standardized beta

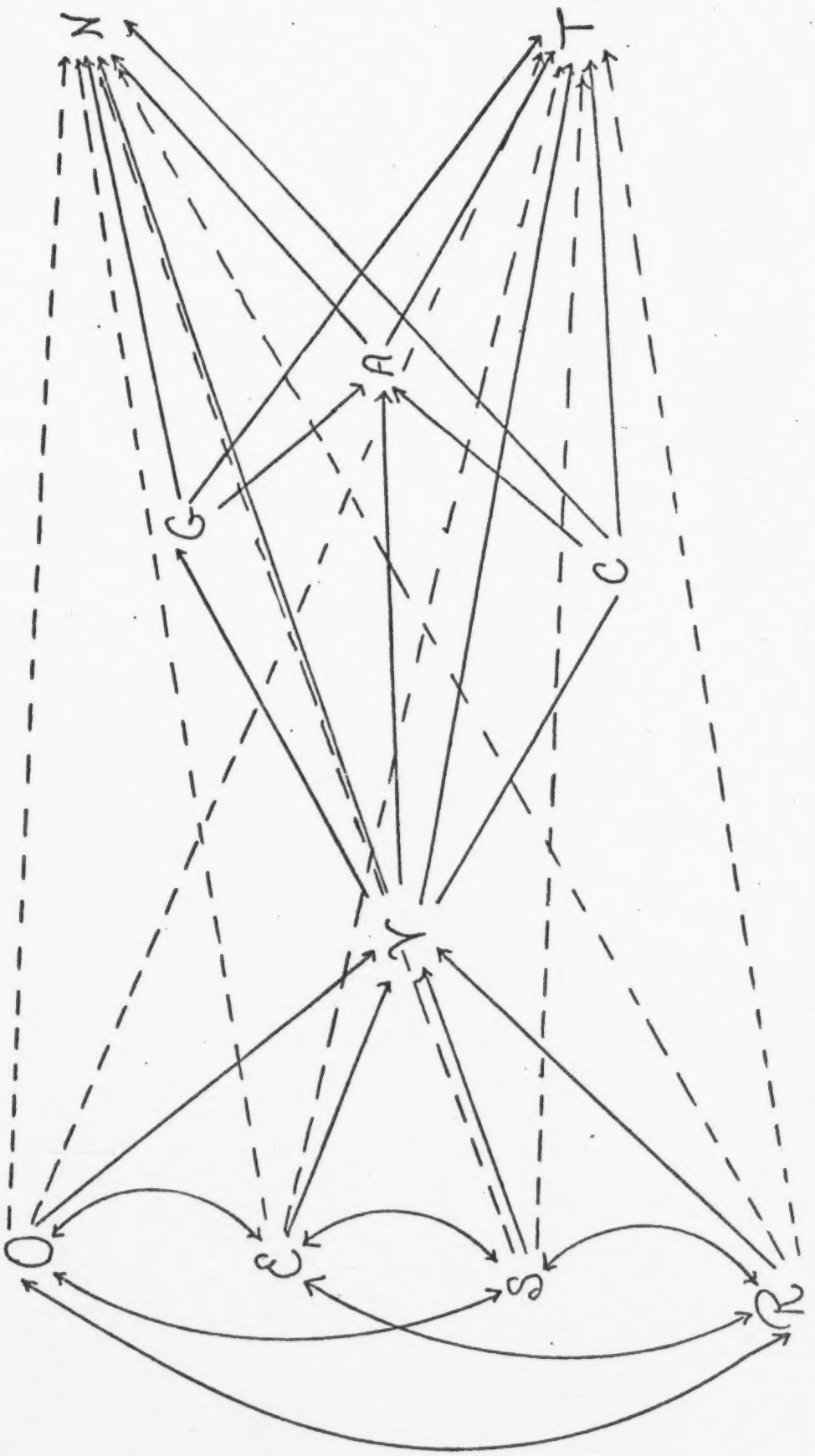

FIGURE 13. HYPOTHETICAL MODEL FOR THE PREDICTION OF PERCEIVED ENCOURAGEMENT (N) AND NUMBER OF TIMES A STUDENT VISITED A COUNSELOR (T) FROM BACKGROUND FACTORS (O, E, S, R), ABILITY (V), AND EXPERIENCE IN SCHOOL (G, C, A). (SEE TEXT FOR PRECISE DEFINITION OF VARIABLES.)

TABLE 32

ZERO-ORDER CORRELATIONS BETWEEN SOCIAL CLASS BACKGROUND AND NUMBER OF TIMES SAW A COUNSELOR LAST YEAR AND PERCEIVED ENCOURAGEMENT

TOTAL POOLED SAMPLE

Predetermined Variables	No. of Visits In Last Year	Perceived Encouragement
Sex	-.048	-.090
Race	.045	.068
Father's Occupation	.120	.214
Father's Education	.111	.233
No. of Siblings	-.038	-.140
Verbal Ability	.120	.376
Grades	.077	.288
Curriculum	.150	.460
Aspirations	.161	.469
School Effect (% between)	.1226	.0561

coefficients are presented in Table 33, for all the variables in the specified model and for other equations tested. The values are presented for the total sample, as well as the coefficients calculated for the within schools model. The within school correlations and path coefficients were obtained from comparable equations after first entering the 47 dummy variables for schools and standardizing the coefficients by $\sqrt{\frac{cxxw}{cyyw}}$, or the square root of the proportion of the square root of the proportion of variance within schools, on the dependent and independent variable. Since counseling is definitely a within school process, the analysis was restricted to the within school coefficients.

The analysis of counseling and race consists of only those fifteen schools with more than ten per cent of the student body reporting non-white racial background. The path coefficients and diagrams which include race are calculated only for the students in these schools, and the findings are discussed separately. The models presented are the within school effects, derived from the above procedure; the technique assumes insignificant interactions between within school slopes, which has been discussed previously. The sums

TABLE 33

STANDARDIZED BETA COEFFICIENTS
PREDICTING NO. OF VISITS TO COUNSELOR
AND PRECEIVED ENCOURAGEMENT BY SOCIAL
CLASS, ABILITY, GRADES, AND CURRICULUM
FOR THE TOTAL SAMPLE, AND WITHIN SCHOOLS

EQUATIONS TESTED TOTAL POOLED SAMPLE	INDEPENDENT VARIABLES						R^2
	O	E	S	V	G	C	
T on O,E,S	.061	.090	-.009*				.018
T on O,E,S,V	.047	.075	.007*	.084			.024
T on C,V,G				.050	.019	.117	.025
T on O,E,S, V,C,G	.037	.063	.013*	.034	.014*	.099	.031
N on O,E,S	.115	.155	-.088				.073
N on O,E,S,V	.060	.095	-.025	.320			.159
N on C,V,G				.181	.117	.363	.235
N on O,E,S, V,G,C	.023	.052	-.004*	.133	.113	.326	.250
NET OF SCHOOL EFFECTS							
T on O,E,S	.045	.070	-.004*				.131
T on O,E,S,V	.036	.056	-.002*	.079			.136
T on C,V,G				.038	.104	.023	.139
T on O,E,S, V,C,G	.026	.045	.003*	.030	.018	.091	.142

TABLE 33--Continued

EQUATIONS TESTED TOTAL POOLED SAMPLE	INDEPENDENT VARIABLES						R^2
	O	E	S	V	G	C	
NET OF SCHOOL EFFECTS							
N on O,E,S	.105	.144	-.057				.097
N on O,E,S,V	.062	.086	-.033	.336			.186
N on C,V,G				.156	.119	.334	.268
N on O,E,S, V,C,G	.026	.043	-.015	.146	.115	.321	.271

*Coefficients less than twice standard error.

of squares added due to interactions never exceeded 4.1 per cent in any equation predicting either dependent variable, and a detailed examination seemed unnecessary.

Social Class and Counseling

The relationship between the number of times an individual saw a guidance counselor during the preceding year and the respondent's social class background accounts for less than one per cent of the variance within schools in number of visits to a counselor. When curriculum placement, grades, and verbal ability are controlled, the net increment to within school sums of squares explained is less than 0.3 per cent. It is possible that the trivial association present is indicative of a curvilinear relationship between background status and number of visits to a counselor. One could argue that the low status student may have seen the counselor concerning behavior problems, rather than college admissions or other vocational advice. For the total pooled sample, the correlation ratio between father's occupational status and visits to a guidance counselor, assuming five categoric variables, was only .162, while the linear relationship was .120. The increment in sums of squares is

significant, which indicates the relationship is not strictly linear; however, the coefficients from the equation did not demonstrate the predicted curvilinear pattern. The equation to test for linearity fit four dummy variables, omitting the category "never." The coefficients, then, represent deviations from this category; each was positive, and the unstandardized coefficients increased for each number of visits. If the relationship to status were curvilinear, one would expect the parameters for both many visits and few visits to be lower. On this basis, it was decided to ignore the non-linearity observed since it did not seem to be readily interpretable, and data on why a particular student saw a guidance counselor was not available.

The effects of social class on access to a counselor are not large; when verbal ability is included, the combined unique effects of social class account for slightly over 0.4 per cent of the variance. The unique effects of social class when grades, curriculum, and ability are included are less than 0.3 per cent of the variance in number of times a student saw a counselor. The total variance explained within schools is only slightly less than 2.0 per cent; it would seem that the differences between schools in number of times

a student saw a counselor account for approximately six times as much of the variance as measured variables within schools. The focus was on the relative explanatory power of social class, however, and not the total proportion of the variance attributed to it. The effects of social class are much less important, in the present sample of schools, than grades, verbal ability or curriculum; the unique effects of curriculum, accounting for 0.8 per cent of the variance, would seem substantially greater than the effects of background. Curriculum assignment is the single largest predictor of number of times a student saw a counselor, of any measured variable included in the equation. While it is difficult to argue that the model begins to account for the observed variance among students, the conclusion that social class is not a strong predictor seems tenable. The time a guidance counselor spends with a student depends to a greater extent on the curriculum placement, grades, and ability level of the student than on social class background. The strength of the association between curriculum assignment and number of visits would seem to indicate that the counselor's time is differentially allocated between curricula, independently of grades or ability level. The causal relationship is not completely

clear, since students may have visited a counselor in order to transfer into the college prep curriculum. Since we have no information regarding initiation of visits, the counselor's time may depend on student's seeking advice, rather than being called in for advice. Although the issue of allocation of counseling time cannot be viewed as consciously discriminatory by curricula, the effects would seem to operate to the advantage of the college prep pupil, even when ability leve, grades, and social class background are controlled.

The amount of perceived encouragement a student receives to continue education beyond high school is the second major counseling variable to be considered. The objective was to assess the relative importance of social class background in predicting perceived encouragement. The distribution of responses shown in Table 28 revealed that the distribution was not normal; the possibility of transforming the variable was rejected, since it is not clear that the underlying distribution is normal. The regressions were computed on the variable as it exists, coded as a three-point scale, violating the assumptions of normalcy.

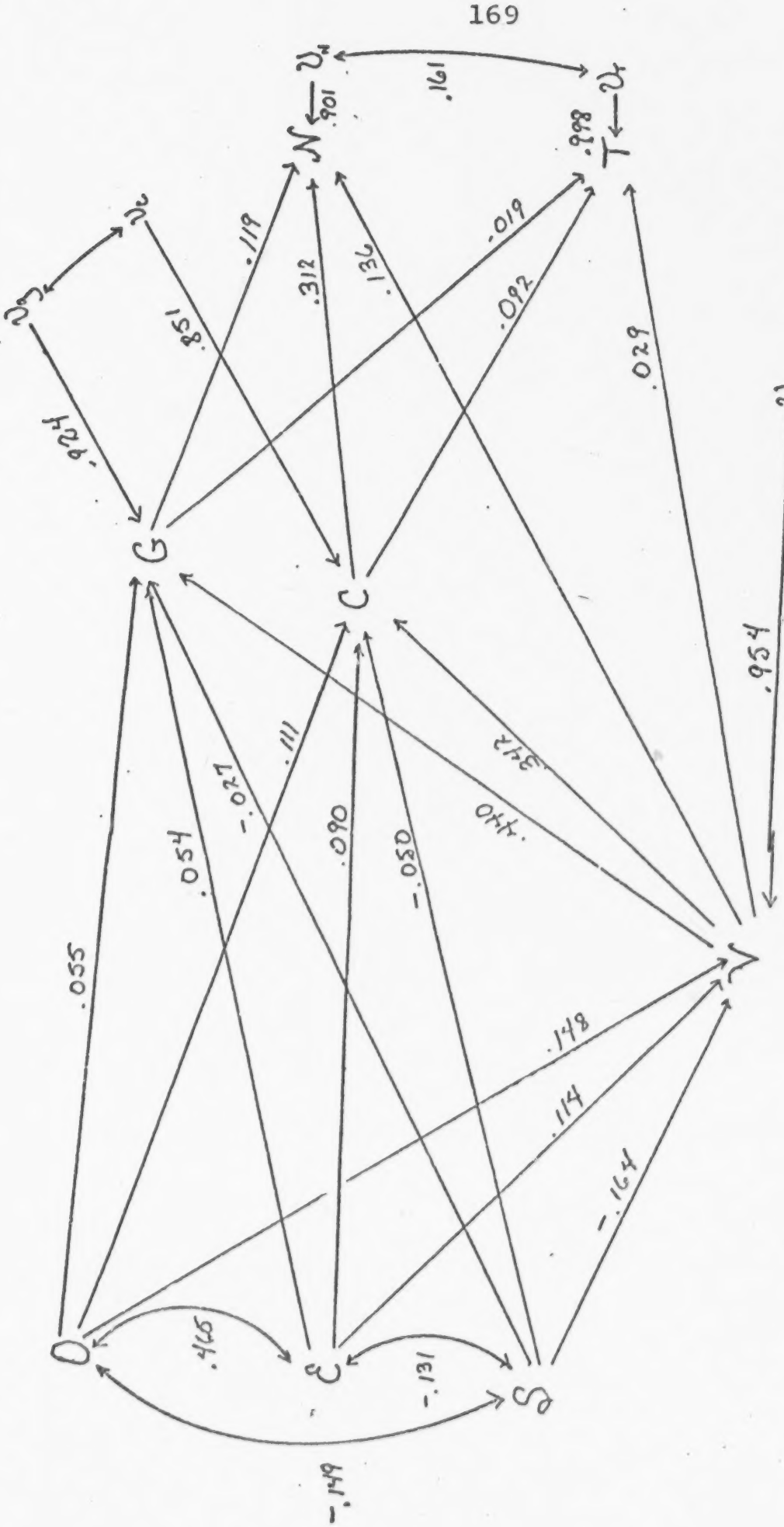

FIGURE 14. WITHIN SCHOOL PATH DIAGRAM FOR THE DETERMINATION OF ENCOURAGEMENT (N) AND VISITS TO COUNSELOR (T) BY BACKGROUND AND SCHOOL EXPERIENCES, FOR TWELFTH GRADE STUDENTS. (SEE TEXT FOR DEFINITION OF VARIABLES.)

Social class accounts for slightly less than 5 per cent of the variance within schools in perceived encouragement, and the unique effects of social class when ability is controlled account for less than 2 per cent of the variance. The combined effects of social class add less than 0.3 per cent to the within school variance explained when ability level, grades, and curriculum assignment are entered in the equation. The effects of social class, although persistently significant, seem quite small when intervening variables are considered. For this reason, the direct effects of social class were excluded from the model depcting the determination of encouragement and number of visits to the guidance counselor. The model presented in Figure 14 is based on the set of recursive equations which do not include direct paths between social class background and either encouragement or number of times the student saw a counselor. The equations in standard form for the solution of the model are:

$$(6.1) \quad V = p_{vo}\, O + p_{ve} E + p_{vs}\, S + p_{vu}\, U_v$$

$$(6.2) \quad C = p_{co}\, O + p_{ce}\, E + p_{cs}\, S + p_{cv}\, V + p_{cu}\, U_c$$

$$(6.3) \quad G = p_{go}\, O + p_{go}\, E + p_{gs} + p_{gv}\, V + p_{gu}\, U_g$$

$$(6.4) \quad N = p_{ng} G + p_{nc} C + p_{nv} V + p_{nu} U_n$$

$$(6.5) \quad T + p_{tg} G + p_{tc} C + p_{tv} V + p_{tu} U_t$$

where it is assumed that

$$r_{uv} = r_{uc} = r_{ug} = r_{un} = r_{ut} = 0,$$

or that the residuals are uncorrelated.

The model represents relationships which must be interpreted as causally ambiguous. While most students are assigned to a curriculum prior to entering their junior year and grades are cumulative throughout their high school years, it is not clear that these events are prior to encouragement and visits to a counselor in the junior year in every case. The purpose of the analysis is illustrative; the objective is to assess the relative strength of the predetermined variables in predicting counseling outcomes. The conclusions of the analysis are that social class has only a trivial relationship to either access to counseling measured by number of visits and perceived encouragement. Social class effects appear slightly stronger when comparing the pooled equations, which suggests that differences between schools magnify the social class differences somewhat. However, the

net impression is that social class background has only a trivial relationship to counseling once grades, curriculum, and verbal ability are controlled.

Secondly, the association between curriculum and counseling is quite strong. To the extent that counseling represents a service or resource allocated within schools, the student's placement is a more important determinant of the differential allocation than either grades or ability level. The implication of such a differential by track suggests curriculum assignment is the mechanism within schools for selective encouragement and counseling. While the process within schools does not seem to reflect the social class background of students, mechanisms of selection and differentiation are important to an understanding of the part schools play in determining adult roles and status.

Race and Counseling

The analysis of the determinants of counseling by race and social class involved only those fifteen schools described. The zero-order correlations between counseling and other variables are given in Table 34, while the complete

TABLE 34

ZERO-ORDER CORRELATIONS BETWEEN PREDETERMINED VARIABLES AND NUMBER OF VISITS TO COUNSELORS, (T) AND PERCEIVED ENCOURAGEMENT (N) FIFTEEN INTEGRATED SCHOOLS

VARIABLES	T	N
Sex	-.067	-.112
Race	.047	.141
Father's Occupation	.078	.225
Father's Education	.113	.256
No. of Siblings	-.052	-.158
Verbal Achievement	.094	.391
Curriculum	.138	.457
Grades	.088	.283
Aspirations	.158	.470
School Effects (% between)	.097	.066

matrix for other variables was presented in the preceding chapter. The standardized beta coefficients for the analysis are presented in Tables 35 and 36. The path coefficients to be presented were calculated by standardizing the coefficients calculated within schools by the square root of the ratio of the proportion of variance within schools in the independent variable to proportion of variance within schools on the dependent variable. For example, the regression equation

$$V_i = b_o + b_1 O_i + b_2 E_i + B_3 S_i + \sum_{j=1}^{14} b_j X_{.j} + e_i$$

where X is a dummy variable calculated for each school, provided three within school partial coefficients. The formula

$$B^*_{vo.esw} = B^*_{vo.esx_j} \times \frac{\sqrt{coow}}{\sqrt{cvvw}}$$

provided the estimate of the within school effect of father's occupation on verbal achievement which would have been obtained from the covariance model which subtracted school means from

TABLE 35

STANDARDIZED BETA COEFFICIENTS PREDICTING NUMBER OF VISITS TO COUNSELOR (T) AND PERCEIVED ENCOURAGEMENT (N) BY SOCIAL CLASS, RACE, ABILITY, GRADES AND CURRICULUM FOR FIFTEEN INTEGRATED SCHOOLS

EQUATIONS TESTED TOTAL POOLED SAMPLE	INDEPENDENT VARIABLES							R^2
	O	E	S	R	V	G	C	
T on O,E,S,R	.017*	.096	-.022*	.012*				.014
T on O,E,S, R,V	.008*	.086	-.013*	.003*	.060			.017
T on C,V,G					.011*	.117	.049	.021
T on C,V,G, R				.002*	.008*	.115	.049	.022
T on O,E,S, R,C,V,G	-.003*	.071	-.005*	-.004	-.006*	.043	.103	.026
N on O,E,S,R	.100	.173	-.081	.043				.086
N on O,E,S, R,V	.044	.119	-.032	-.045	.343			.173
N on C,V,G					.159	.126	.329	.248
N on C,V,G, R				-.012*	.162	.125	.327	.249
N on O,E,S, R,C,V,G	.013*	.073	-.007*	-.024*	.149	.120	.312	.254

*Regression coefficient less than twice standard error.

TABLE 36

STANDARDIZED BETA COEFFICIENTS PREDICTING NUMBER OF VISITS TO COUNSELORS (T) AND PERCEIVED ENCOURAGEMENT (N) BY SOCIAL CLASS, RACE, ABILITY, GRADES, AND CURRICULUM, NET OF SCHOOL EFFECTS

EQUATIONS TESTED TOTAL POOLED SAMPLE	INDEPENDENT VARIABLES							
	O	E	S	R	V	G	C	R^2
T on O,E,S,R	.018*	.075	-.032	.013*				.106
T on O,E,S, R,V	.010*	.066	-.024*	-.005*	.078			.110
T on C,V,G					.031	.030	.110	.113
T on C,V,G,R				.011*	.027*	.029*	.110	.114
T on O,E,S, R,C,V,G	.002*	.053	-.017*	.001*	.021*	.024	.098	.116
N on O,E,S,R	.070	.150	-.064	.041				.113
N on O,E,S, R,V	.036	.114	-.027*	-.035	.338			.186
N on C,V,G					.144	.126	.331	.263
N on C,V,G,R				-.008*	.147	.126	.330	.263
N on O,E,S, R,C,V,G	.006*	.068	-.005*	-.017*	.141	.119	.317	.267

*Regression coefficients less than twice standard errors.

each of the individual level relationships.

Figure 15 summarizes the within school procsses estimated in this manner, for the fifteen integrated schools. The coefficients for race were excluded from the calculations since they were not significant when verbal ability,grade point average, and curriculum assignment were controlled. The significance tests were calculated for the minimum number of cases available in a given equation, although all correlations were computed by assuming a pariwise deletion of missing observations, to preserve information. The degrees of freedom for the entire equation, however, is based on the number of cases with responses on every variable. The significance level accepted for a particular coefficient was chosen to be an F-value exceeding 4.00, implying that the coefficient was at least twice the standard error. The effects of race are without exception insignificant, although the criteria is relatively stringent. The direction of the race coefficient should be noted, even though the effects are insignificant. Non-white students perceive more positive encouragement from counselors when background, ability level, grades, and curriculum are included than do white students. Non-whites

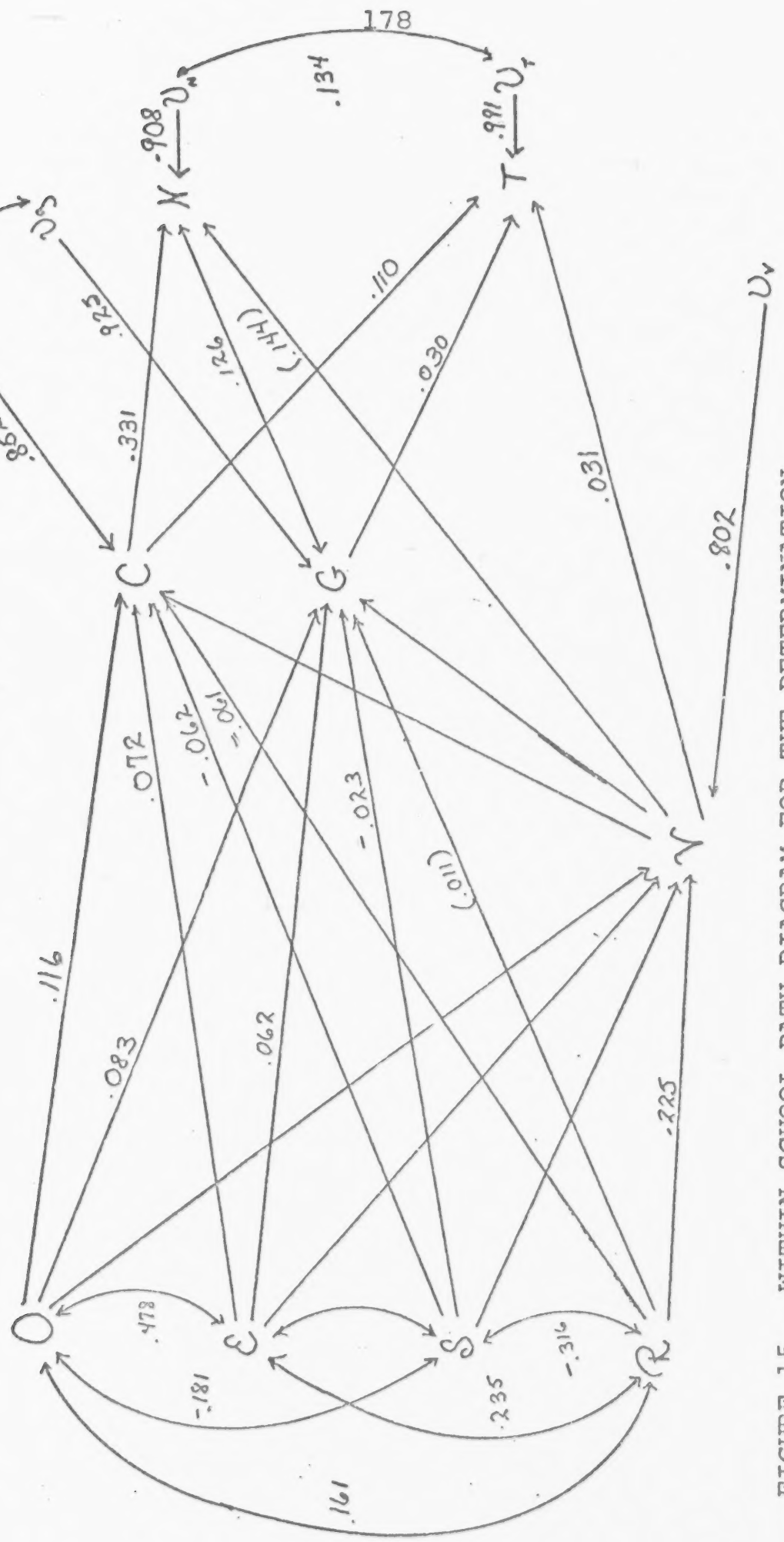

FIGURE 15. WITHIN SCHOOL PATH DIAGRAM FOR THE DETERMINATION OF ENCOURAGEMENT (N) AND VISITS TO COUNSELOR (T) BY BACKGROUND AND SCHOOL EXPERIENCES, FOR TWELFTH GRADE STUDENTS IN FIFTEEN INTEGRATED HIGH SCHOOLS. (SEE TEXT FOR DEFINITION OF VARIABLES.)

tend to see counselors, however, slightly less than white students, regardless of background or intervening variables, although the effect is trivial. The conclusion to be reached on the basis of the present sample of high schools is that neither the counselor's time nor encouragement are allocated differentially by race. If racial discrimination in high schools is present, it does not seem to be reflected in either how often a non-white student sees a counselor or the perceived encouragement when the student's verbal ability is controlled. In fact, for two students differing only on racial background, the non-white student is likely to perceive slightly more encouragement than the white student. The within school effects of race are less than the direct effects of any other background variable on both number of visits to a counselor and encouragement. In general, neither the social class nor racial background of the student predict the differential allocation of counselor's time or encouragement; when the effects of intervening factors such as curriculum assignment, ability, and grades are controlled, background factors are only trivially related.

Conclusions

The relationship between background and access to counseling has been explored in the present chapter. While the variables chosen are no doubt crude approximations of subtle process within schools, the results provide little evidence that social class, background or race are critical determinants of differential access to counselors or perceived encouragement. With regard to encouragement, the popular conception of the alienated lower class pupil would not seem upheld in the present analysis; less than 3.0 per cent of the variance within schools in perceived encouragement is explained by social class, and when other variables are included, such as verbal ability, the unique effects are quite trivial. The findings with regard to race suggest that it is even less important than social class in accounting for the variance. While it is apparent that the largest portion of the variance is not explained, one would expect background differences among students to be relatively more important in explaining stratification within schools, or the structure of rewards, such as grades, and encouragement, if schools were perpetuating social class differences through

selection. The allocation of counseling services is differential with respect to curriculum; it seems reasonable to argue that other resources within the school are also differentially allocated as well.

The determinant of stratification within schools, however, is primarily verbal achievement, rather than background. A description of schooling as reinforcing background differences, rather than encouraging mobility, is not supported with the present data. A more realistic appraisal is that the mechanisms of selection operate primarily through a student's ability level,and when ability is controlled, the rewards and reinforcement offered by schools is not strongly related to social class, background or race.

CHAPTER VII

CURRICULUM PLACEMENT BETWEEN SCHOOLS

The focus of the analysis prior to now has been primarily on the determinants of curriculum placement at the individual level for twelfth grade students. Equally interesting questions can be asked concerning the determinants of grouping between schools. The probability of being placed in a college prep curriculum for any student, depends both on the individual-level determinants and on the school proportion assigned to a college prep curriculum, within the school in which the student is enrolled.

Although assignment probabilities depend primarily on verbal ability, and only slightly on the class background of the pupil, perhaps the socio-economic composition of the high school determines the size of the track, and thus the probability of placement in a college track. While the composition of the college track is certainly more select than the school, we should like to estimate how schools differ in the degree to which students are segregated by

social class and race due to differential placement.

In the first section, we shall consider the effects of composition on mean verbal score and on proportion college prep. Secondly, the residual scores will be analyzed and the effects of different tracking policies explored.

Composition and Context

The variables involved in the between-schools analysis are school means, and curriculum means within schools. The dependent variables we are concerned with are mean verbal score for the school, and proportion college prep. The independent variables measuring social class composition are mean father's education, mean number of siblings, and mean occupational prestige of fathers. These values were computed separately for each school and constitute the variables utilized in the between school analysis. Table 34 presents the means, standard deviations, and correlations used in the analysis.

The between schools analysis consists of two distinct components; the decomposition of the variance between composition effects and residual, or contextual effects, and

TABLE 37

BETWEEN SCHOOLS CORRELATION MATRIX
PER CENT COLLEGE PREP, VERBAL ACHIEVEMENT,
AND SOCIAL CLASS COMPOSITION

	C	V	O	E	S	Mean	S.D.
C = Per Cent College Prep	1.00					.48	.16
V = Mean Verbal Achievement	.734	1.00				36.16	5.47
O = Mean Occupation	.771	.887	1.00			53.82	6.99
E = Mean Education	.766	.819	.943	1.00		11.38	1.33
S = Mean No. of Siblinga	-.586	-.767	-.704	-.642	1.00	3.02	.68

an analysis of the residuals in terms of policy and structural differences between schools. The model for the interpretation of differences between schools is based on a similar decomposition by Hauser;[1] the additive relationship

$$v_j = C_j + rj \qquad \text{[Eq. 18]}$$

expresses the decomposition in raw form of the variables analyzed. Two separate decompositions were obtained; the effects of school differences in SES on verbal achievement and the effects of SES and achievement differences on curriculum placement. If the subscripts i, j, and k represent students, schools and variables, respectively, the value Cj is equal to the composition effect, standardized by the within school net regression coefficient in raw form of V_j on X_k, or,

$$V_j^* = \bar{V}_j \sum_{k=1}^{48} b_{vx} \quad (\bar{x}_{.jk} - \bar{x}_{..k}) \qquad \text{[Eq. 19]}$$

That is, V_j^* represents the amount by which mean school verbal achievement would change if the school means on predetermined variables were shifted to the grand mean for all schools and students. The variables can be standardized to obtain:

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[1]Hauer, "Schools and the Stratification Process," American Journal of Sociology, LXXIV, No. 6 (May, 1969), pp. 587-611.

$$\frac{V - \bar{V}}{SD_V} = \frac{C - \bar{C}}{SD_C} \cdot \frac{SD_C}{SD_V} + \frac{R - \bar{R}}{SD_R} \cdot \frac{SD_R}{SD_V} \qquad \text{[Eq. 20]}$$

The standardized coefficients can be interpreted as the paths in a diagram such as shown in Figure 16. The model allows one to decompose the between school variance intc a proportion due to composition, a joint proportion, and a residual variance. The equation for the complete determination of the effects on V, would be

$$1 = P_{vc}^2 + P_{vr}^2 + 2\, P_{vc}\ r_{cr}\ P_{vr} \qquad \text{[Eq. 21]}$$

The path between R and V is normally assumed to be the contextual effect; as Hauser argues, however, the effects operating through R include all the unmeasured determinants of V, as well as any structural difference between schools. The assumption that $r_{cr} = 0$ is not required in the present example, since the within school slopes were used to estimate the values of c_j.

Table 38 presents the results of this decomposition for each of the social class background variables individually. The adjustments were computed from the actual within school slopes present, and standardized across all schools.

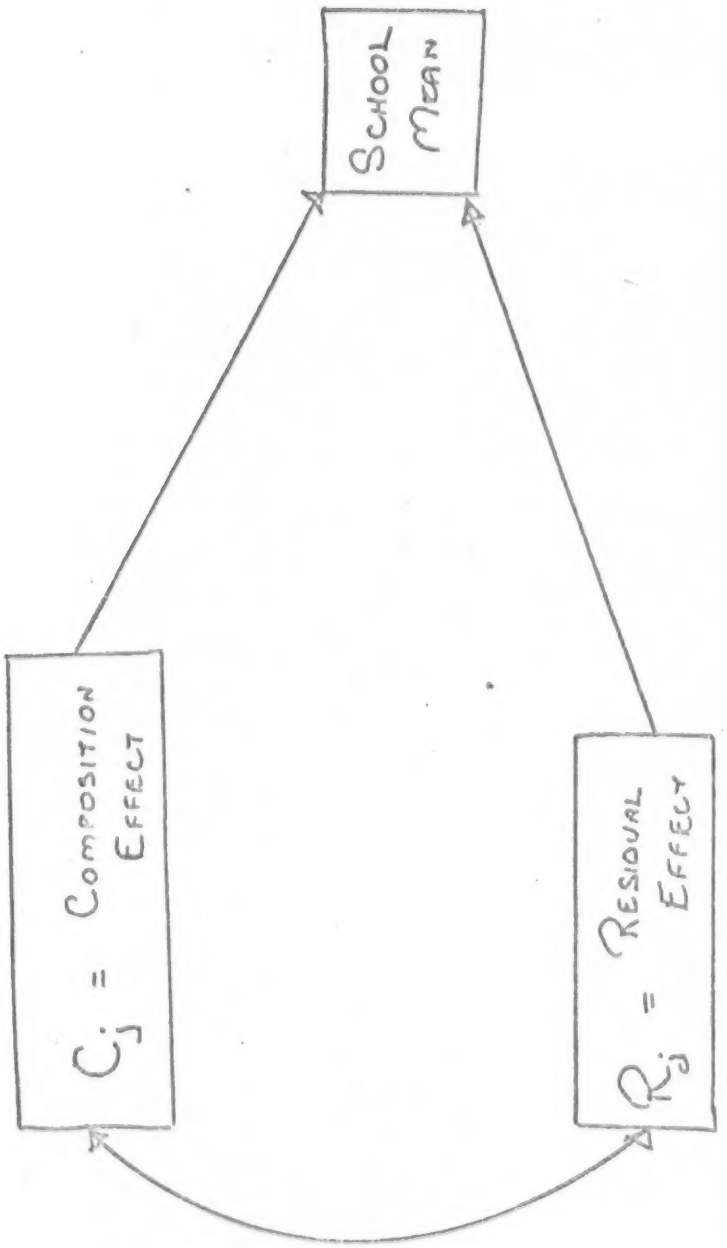

FIGURE 16. DIAGRAMATIC REPRESENTATION OF MODEL D
BETWEEN SCHOOLS VARIANCE, WHERE C_j IS
SITION EFFECT AND R_j IS THE RESIDUAL
SCHOOL VARIANCE.

TABLE 38

ALLOCATION OF THE PROPORTION OF VARIANCE
BETWEEN SCHOOLS EXPLAINED BY COMPOSITION
AND RESIDUAL FACTORS

N = 48 Schools

	Determination of V			Determination of C		
Independent Variables	Composition	Joint	Residual	Composition	Joint	Residual
O	2.8%	18.9%	78.3%	14.8%	-1.1%	87.3
E	16.4	14.3	69.3	23.2	10.3	66.5
S	3.1	23.2	74.7	11.4	8.2	80.4
V	-	-	-	5.8	3.9	91.3
O,E,S	25.2	17.3	57.5	32.2	-3.8	72.6
O,E,S,V	-	-	-	19.4	-2.8	83.4

This procedure disregards the interactions between school slopes as contextual effects. Additionally, the unstandardized partial regression coefficients were used to compute a value of Cj for each school which took into account all the background variables between schools. In the present sample social class composition accounts for between 3 to 25 per cent of the between school variance in achievement. The effects of composition are larger when the between school variance in curriculum is decomposed, although the joint effects are smaller. The negative joint effects obtained in the decomposition of c are due to a negative correlation between composition and risidual factors, across schools.

Conceptually, the school value, Cj, represents the amount the school mean would change if the school mean on the predetermined variable were shifted to the grand mean. The risidual, Rj, represents the difference computed for each school between Vj and Cj. As Table 39 indicates, the residual variance is considerably larger than the effects of composition for any of the variables. The residual variance could be interpreted as the effects of context on student achievement on placement, except insofar as it reflects

unmeasured composition factors.

The substantive importance of the residual term is an important issue in school effects. To the extent that it can be related to structural differences between schools, it may be interpreted as a school effect. While the effects of composition do not account for most of the between school variance in either achievement or curriculum placement, interpreting the residual as a contextual effect is hazardous. An effort was made to test the relationship between the size of the residual and school characteristics. The residual term was calculated from the between schools equation:

$$r_{vj} = V_j - b_j (\bar{o}_{.j} \bar{o}_{..}) - b_j (\bar{E}_{.j} - \bar{E}_{..}) - b_j (\bar{s}_{.j} - \bar{s}_{..})$$

[Eq. 22]

In this case, r_{vj} is a measure of the residual between school variance in achievement, when the school composition on social class background, measured by father's occupation, father's education and mean number of siblings is controlled. The residual r_{cj} was also calculated, from the equation

$$r_{cj} = c_j - b_j (\bar{o}_{.j} - \bar{o}_{..}) - b_j (\bar{e}_{.j} - \bar{e}_{..}) - b_j (\bar{s}_{.j} - \bar{s}_{..}) - b_j (\bar{v}_{.j} - \bar{v}_{..}).$$ [Eq. 23]

where r_{cj} is the residual or contextual effect of curriculum when verbal ability and social class composition is controlled.

The strength of the relationship between the residual and six structural variables was tested by calculating the zero-order correlations and by computing a multiple regression equation which included dummy variables based on categories of the independent variables. The zero-order correlation measures the strength of the linear relationship, while the total sums of squares explained in an equation based on categoric variables tests for possibly non-linear effects. Table 39 presents the values computed for six structural characteristics: size of school; location, whether it was located in the central city or suburb; region, based on differences between schools in the West and Midwest, or the Northeast; whether the school had an accelerated curriculum; advanced placement; and the racial composition of the school. To test for non-linear effects, school size and racial composition were trichotimized. The categories for school size were schools with fewer than 500 students, schools with between 500 and 1,200, and schools with an

TABLE 39

PROPORTIONS OF BETWEEN SCHOOL VARIANCE IN RESIDUAL TERMS EXPLAINED BY STRUCTURAL DIFFERENCE IN SCHOOLS

Independent Variables	Residual Terms	
	r_{vj}	r_{cj}
Size of School-Total	.018*	.013*
Categoric Variables	.006*	.002*
Location of School	.017*	.023*
Region	.042*	.181*
Accelerated Curriculum	.231	.092*
Advanced Placement	.304	.112*
Racial Composition - Proportion nonwhite	.482	-.039*
Racial Categories	.461	-.124*

*R^2 Not significantly greater than zero, F-test.

enrollment larger than 1,200. Racial composition was treated as three categories: less than 10 per cent non-white, 10 - 88 per cent non-white, and more than 88 per cent non-white.

The eight equations utilizing the between school residual, r_{vj}, yielded only four significant relationships. The racial composition of the school explains slightly less than one-fourth of the between school residual on verbal ability. The racial context would seem, therefore, to be an important variable in explaining the residual differences between schools in verbal ability. The racial composition variable, it should be noted, is a school composition factor which was not controlled when computing r_{vj}; it seems highly likely that the significant relationship is due to unmeasured differences in composition, in this case, rather than a racial context.

The presence of an accelerated curriculum or advanced placement is also positively related to between school differences in verbal ability. The significance of these factors suggests either the presence of an accelerated curriculum or advanced placement is indicative of an academic or achievement-oriented context, which influences verbal

achievement after controlling for composition; or possibly that the advanced courses themselves improve the achievement level of students when social class composition is controlled.

Coleman argued that students who receive high grades in schools where academic achievement is valued are relatively more intelligent than students in schools where academic achievement is not valued.[2] If one assumes that the presence of advanced placement is indicative of a relatively more academic orientation, or context, the present analysis suggests that students do have slightly higher mean verbal scores, than expected on the basis of composition, in such schools.

The residual term, r_{cj} is not related to any structural characteristic measured. The analysis strongly suggests that between schools, the unexplained variance in the proportion college prep is not related to the structural characteristics tested.

While this analysis is intended to be merely suggestive, the outcomes do not support the importance of a context

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[2]James S. Coleman, The Adolescent Society (Glencoe: Free Press), 1961.

variable which is related to size, location of school, or region. The relationship between racial composition suggests instead the residual is related to unmeasured composition factors between schools, rather than social class context.

Tracking Policies Between Schools

The research originally proposed included a section concerning the determinants of school policies regarding tracking, and the determinants of differences between schools. In particular, the degree to which a school assigned students to groups on the basis of ability and the school policy with regard to between track mobility were considered important measures of grouping at the school level. The focus of this section is only on schools; while composition of the school may be reflected in differences in school policies or resources, the analysis is intended to be descriptive rather than causal. Since the unit of analysis is the school, rather than the student, the relative effects of context or composition are not conceptually distinguished. Inferences will be restricted to schools, and the ecological fallacy is not relevant. The following analysis was undertaken to determine

the structural correlates of tracking policies between schools. The hypothesis was that differences between schools in policies were related to the size, and composition of the school. A "flexible" system, for example, would be more characteristic of a "good" or "fair" school; and that these schools could be contrasted and outcomes identified. While we did not expect to develop a typology of schools, the relationships between policy variables and school structure or outcomes raises important sociological issues regarding organizational behavior. Tracking here applies to both ability grouping and curriculum assignment; the dependent variables are based primarily on the principal's responses and school-level measures.

The dependent variables to be analyzed are school policies with regard to tracking, and we will consider differences between schools which may be related. The amount of mobility between tracks, as reported by the principal, and the amount of misassignment to curriculum were considered important variables to relate to structural differences between schools. Principals were asked two questions regarding between track mobility:

1) About what percentage of students moved from one track to a higher track since September, 1964?

2) About what percentage of students moved from one track to a lower track since September, 1964?

The responses were coded from none to 60 per cent or more, for both questions. Coleman constructed a composite scale from these two questions, consisting of the summed values, which he used to analyze the between track mobility.[3] The present analysis, however, will treat the two variables separately.

Second, the degree to which the outcomes of grouping in a school reflected actual ability differences between students is a variable of some importance. The extent to which a particular school assigned students to a college preparatory curriculum on the basis of verbal ability could be considered a measure of the conscientiousness of schools in grouping, or the degree to which selection is meritocratic. Two distinct measures were computed for both ninth and twelfth graders in the sample; the proportion misassigned at the school level, and the overall relationship between

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[3]Coleman, EEOS, Chapter III.

achievement level and curriculum assignment within the school. Students were initially ranked within schools on the basis of verbal achievement test scores; in the case of ties, the student with the higher self-reported grades was given the higher rank. The students were then artificially "assigned" on the basis of ranks to a curriculum. The proportion assigned was assumed to be the actual number of students in the curriculum within the school. This procedure yielded a predicted placement for each student, which could be compared to the actual placement within schools. The proportion of students "misassigned" was calculated for each school, as well as the zero-order correlation between predicted placement and actual placement. These two variables, computed separately for ninth and twelfth graders, were chosen as measures of the degree to which schools were "meritocratic" in assignment policies, or that placement was related to achievement criteria.

An analysis of the structural correlates of tracking policies across schools has not been attempted in the sociological literature. Hypotheses regarding differences between schools with respect to tracking are, therefore, based on a priori assumptions regarding the ways schools operate

rather than previous research. Flexibility in grouping, or the degree to which schools differ in between track mobility, should be characteristic of schools which are relatively more conscientious in assignment policies, and should, therefore, have fewer students misassigned. Schools which test students frequently should also have fewer students who are incorrectly assigned. It also was postulated that such schools would have fewer drop-outs. In a study conducted in Illinois,[4] the argument was made that schools which allow transfers between curriculum, or crosstracking, held the students interest and provided more of an incentive to stay in school. Brookover conducted a study of three high schools in Illinois[5] and concluded that the high status schools provided more between school mobility, particularly for higher status pupils within those schools. A study conducted by the Russell Sage Foundation found that schools with heterogeneous populations were slightly more likely to rely on test scores for placement, than more homogeneous

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[4]Polk, Tracking in Public High Schools.

[5]Wilbur B. Brookover, Donald J. Lev, and Hugh Kariger, "Discrimination in Tracking"(unpublished manuscript, College of Education, Michigan State University, 1968).

schools.[6] While these differences were in no case large, the direction of inquiry was to ascertain whether structural differences in the schools presently studied partially accounted for differences in policies.

The total distribution of responses by principals to the questions of between track mobility are presented in Table 40. The correlation between the amount of mobility into an upper track and into a lower track is only .04 across the schools in the present sample. Apparently less than half the principals viewed tracking as a zero-sum model, in which movement into a high group was equal to movement into a lower track. The remaining principals responded that a larger proportion of students moved into the high group. Such differences account for the low correlation between the two measures across schools.

The test that the differences between schools in policies reflected structural characteristics of high schools was conducted primarily by inspecting plotted distributions of the policy variables and other characteristics of schools. An analysis of variance in which the dependent variable was

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[6] David Goslin, Teachers and Testing (New York: Russell Sage Foundation, 1967).

TABLE 40

PERCENTAGE DISTRIBUTION OF RESPONSES BY PRINCIPALS TO QUESTION OF BETWEEN TRACK MOBILITY

N = 42

Response	Movement Into High Track		Movement Into Low Track	
	%	(N)	%	(N)
None	-	-	-	-
0 - 10%	14.2	(6)	45.2	(19)
10 - 20%	33.3	(14)	42.8	(18)
20 - 50%	28.6	(12)	9.5	(4)
over 50%	23.8	(10)	2.3	(1)
Total	100.0%	42	99.8%	42

amount of mobility between tracks seems as parsimonious a way of presenting the results as any other. Since the sample size was small, the independent variables have been dichotomized at the between school means, and the sums of squares explained computed across schools. These differences were computed with a regression routine which tested the significance of a dummy variable entered into the equation for cases falling above the mean on the independent variable. The test is statistically equivalent to a t-test for the significance of differences between means. Both dependent variables were coded at the midpoints of the intervals represented. Table 41 summarizes the means, standard deviations, and the proportion of variance explained in the dependent variables by each independent variable.

As Table 41 illustrates, only the proportion white collar in the school was significantly related to amount of mobility across schools. The general conclusion to be reached from the analysis of the differences between schools in mobility in the present sample is that mobility or flexibility of tracking does not seem to be related systematically to any school characteristic studied; the relationship

TABLE 41

MEANS, STANDARD DEVIATIONS, AND PROPORTION OF VARIANCE IN BETWEEN TRACK MOBILITY EXPLAINED BY INDEPENDENT VARIABLES

Independent Variable	Mean	Standard Deviations	Proportion Variance Explained in Upward Mobility	Proportion Variance Explained in Downward Mobility
Number of Achievement Tests Given	2.1%	.8%	8.4%*	2.1%*
Number of IQ Tests	.7	.5	4.2*	7.4*
Per Cent Misclassified at 12th grade	29.3	11.4	3.1*	.2*
Per Cent Drop-out	13.0	8.2	.2*	1.7*
Per Cent White Collar in School	35.4	17.9	16.2	14.3
Per Cent White in School	78.3	27.0	7.3*	4.6*

* F-value less than 1, or differences insignificant at .05 level.

between social class composition and flexibility would also be insignificant if two schools were omitted. The degree to which schools differ in "equity" of assignment was also examined. The plotted distributions were quite random with respect to any structural difference observed between schools. More importantly, the variables do not seem to measure persistent characteristics of schools. Table 39 presents the zero order correlations between the ninth and twelfth grade of the proportion misassigned, and the within school correlation between predicted assignment and actual assignment. Such low relationships between effects in the ninth grade and school effects in the twelfth grade strongly suggest that the variables measured are not enduring school characteristics. Misassignment would seem to be a random phenomenon with respect to different schools or cohorts of students.

Conclusion

In the present chapter between school differences in curriculum assignment were explored. The between schools variance in both verbal achievement and placement was decomposed to represent the proportion due to context and the proportion due to composition. The general conclusion reached

TABLE 42

MEANS, STANDARD DEVIATION AND ZERO-ORDER CORRELATIONS BETWEEN PROPORTION MISASSIGNED AND WITHIN SCHOOL RELATIONSHIP BETWEEN CURRICULUM ASSIGNMENT AND ACHIEVEMENT

N = 42

	a	b	c	Mean	Standard Deviation
Ninth Grade a) Proportion Misassigned	1.00			29.3	6.5
b) Within School Correlation	.64	1.00		.319	.175
Twelfth Grade c) Proportion Misassigned	.32	-.02	1.00	25.5	5.2
d) Within School Correlation	-.210	.46	-.69	.421	.169

was that the school composition accounted for between 3 to 25 per cent of the variance between schools. An attempt was made to relate the residual effect, or the variance which might be attributed to school context, to structural differences between schools. The only characteristic which was found to be significantly related to the residual variance was the racial composition of the high school;this suggests that the residual between schools variance is due to unmeasured composition factors rather than measured structural differences between schools.

The differences between schools in tracking policies were also explored. The differences reported were not related to school size, location of school, or social class composition. In part,these results may indicate that the necessity to limit the analysis to four-year urban high schools may have eliminated most of the variability between schools which is related to policy differences. Secondly, the reliabilities of the principal's responses on flexibility of tracking may be quite low. There is no way to test how adequately the principal's estimate corresponds to the actual within school mobility. It is likely that many schools do not have a stated policy, but assign

or transfer pupils differently in different grades, or based on distinct criteria. If teachers have a large part in the decisions regarding placement, the principal may not actually know how often students are reassigned or transferred. Finally, the within school relationship between curriculum assignment and achievement level did not correlate highly between the ninth grade and the twelfth grade. To the extent that schools differ with respect to criteria for placement, or social class or racial biases exist, one would expect comparable results between the ninth and the twelfth grade across schools. The low correlations suggest that such differences in misassignment are not the result of consistent school policies, but operate relatively randomly across different cohoerts of students within schools. One could conclude that either the measures chosen for the adequacy of placement are too crude to measure subtle distinctions within schools, or that the lack of consistency is evidence that placement is not an inherently discriminatory process, in that the schools studied do not show consistent tendencies to misassign pupils, when achievement is the criteria of placement.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

The analysis presented has focused on the determinants of placement in forty-eight public high schools located in the urban North. A review of the findings are presented in the present chapter, and the implications discussed. Several alternative models of placement are presented, and explored in the context of equality of opportunity.

Summary of Findings

The process of assignment, it has been argued, can be viewed as the critical variable in educational selection and recruitment to college, the labor market, and adult roles and status. The determinants of placement reflect the stratification system within schools which serves as an intervening link in the attainment process. The norm of American secondary education is the comprehensive public high school, which provides a differentiated curriculum, for

students of different backgrounds, and abilities. Tracking, or curriculum assignment in the present case, is a mechanism for both the selection and differentiation of students. The structural differences between schools in types of curriculum, accelerated or honors programs, remedial course work, or other more refined within school grouping practices has been largely ignored in the present analysis; the focus has been entirely on the relatively crude distinction between a college preparatory curriculum and all others. The rationale is that this distinction is a primary ingredient in the determination of both aspirations and actual college attendance. The determinants of assignment within high schools thus reflect the linkage between educational instituions and those of the larger society; an understanding of the processes of selection in high schools should contribute to an understanding of the dynamics of social mobility, and the determinants of attainment.

Within schools, the determinants of placement are largely the tested verbal ability of the student, not social class background. The direct effects of verbal achievement are nearly ten times as large as the direct effects of social class on either placement or grades. The direct and indirect

effects of social class combined account for only slightly more than one-third of the total variance in placement explained; the decomposition of variance for grades is quite comparable and does not suggest that social class is an important determinant of processes within schools. Quite similar results were obtained when the analysis was restricted to only integrated schools; the effects of race, however, challenge the prevailing assumption that discrimination within schools is a source of differential attainment.

Differences between schools add only 4.1 per cent to the variance accounted for in placement when ability is controlled, and 3.3 per cent of the total variance when social class and ability is included. Equally important, neither the variations in assignment probabilities between schools nor the interactions within schools seem readily interpretable or related to observed differences between schools. While composition accounts for less than half the between school variability in either verbal score or proportion college prep, the residual variance shows only a slight, and usually insignificant, relationship to other characteristics of the school. Since the present sample of high

schools is (a) not random and (b) selected to be relatively homogeneous, these results do not seem either startling or large enough to justify pursuing at length. The strongest impression is that although schools do vary somewhat, isolating the source of differences is extremely difficult; given the relatively small amount of the total variance which lies between schools when individual differences are controlled, it does not seem to be a potentially fruitful exercise. When a truly random sample of schools is available, with a larger case base than 48 , or our theoretical conceptions of what constitutes a meaningful contextual effect are better developed; perhaps differences between schools will become less ambiguous. As Hauser states, when discussing the general subject of the size of school effects,

> Leaving to one side the interpretation of school differences, the EEO finding that school differences were small is undoubtedly correct. None of the studies of school effects leaves any reason to doubt the validity of this finding. Moreover, we can reduce gross school effects to the point of substantive (if not statistical) insignificance by recourse to the moderately powerful sociological theories of individual achievement which are presently available.[1]

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[1] Robert M. Hauser, "Educational Stratification in the United States," Sociological Inquiry, XL (Spring, 1970), p. 118.

The racial effect isolated in the present analysis is perhaps more interesting, in some respects, than the effects of social class. While coefficients for race within schools are quite small, they suggest that non-whites are not discriminated against in placement. In fact, if verbal skills are the criteria of appropriate placement, non-white students are slightly more likely to be assigned to a college preparatory track than white students of comparable ability and social class background. The relationship holds between schools as well, although this is largely due to the fact that the three all-black schools analyzed in the present sample have a large proportion of students assigned to a college preparatory track, and relatively low verbal scores. It is not clear whether non-white students actually receive college preparation equivalent to white students, although it seems reasonable to doubt that they do.

The relationship between counseling and placement was analyzed; it seems clear that neither social class nor racial background are associated with either the number of times a student saw a counselor or the amount of perceived encouragement to continue studies, once verbal ability, placement, and grades are controlled. If counseling services

are viewed as a school resource, it seems doubtful that they are allocated on the basis of either social class or race. The strongest determinant of either counseling variable is the student's placement. The relationships examined suggest that curriculum placement is a critical mechanism within schools for differentially allocating counseling resources.

The summary impression of the selection mechanisms operating within schools is that they are largely meritocratic,in that the student's ability level is considerably more important than background factors in determining placement. The effects of curriculum placement are difficult to document in cross-sectional data; from other sources[2] we know that placement is highly related to actual college attendance. In the present context, the effects of placement on aspirations is considerable, although the causal relationship is unclear. The study of aspirations is relatively handicapped, since we know little of how aspirations are formed

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[2]See Educational Testing Service, Background Factors Relating to College Plans and College Enrollment Among Public High School Students (Princeton, New Jersey, 1957); and John C. Flanagan, The American High School Student (Pittsburgh: University of Pittsburgh Press, 1964).

or the degree of stability over time. It is noteworthy that the present analysis suggests school influences, such as grades, and curriculum, and tested ability largely account for most of the variance in aspirations, while social class background and race add only a small increment to the sums of squares explained. Although the model is deficient in certain respects, student aspirations seem largely determined by processes within the school rather than family influences. The role of schooling as an intervening variable, mediating and diminishing the effects of background is largely supported in the present analysis.

The importance of curriculum placement in the allocation of school resources is difficult to test without more specific knowledge of the structural arrangements in the school. Logically, the argument that students in the college preparatory curriculum are exposed to brighter, more highly motivated peers and that the content of courses is more academic seems irrefutable. It is, however, difficult to argue either that (1) this affects differential achievement independently or (2) that altering the present mechanisms of selection would alter the observed outcomes. While it is

likely that counseling services, and perhaps teaching skills as well, are differentially allocated between tracks, the "equity" of observed placement does not indicate that social class or racial bias is prevalent except insofar as ability is associated to social class background.

Placement and Policy

The implications of this research for the study of stratification are considerable. The frequent analogy to occupational stratification is not without reason, since curriculum placement reflects in part the selective mechanisms linking the educational system to that of the occupational sphere. The determinants of placement in the present study seem considerably less dominated by background factors than the determinants of actual college attendance.[3] While this may provide reassurance for the educator, one scarcely knows where to find "inequality of opportunity." It does not seem to be either between schools[4] of within them, if one

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[3] See Ralph F. Berdie (ed.), After High School, What? (Minneapolis: University of Minnesota Press, 1954).

[4] See Daniel P. Moynihan and Frederick Mosteller (eds.) On Equality of Educational Opportunity (New York:Random House, 1970)

accepts the results of test scores as the criteria. Perhaps it lies in the scarcity of resources which prevent less privileged but talented students from attending college. Or perhaps schools fail to provide relevant alternatives and access to vocational opportunities for the student less oriented towards academic subjects. By concentrating on high school seniors, we have ignored the large numbers of students who leave school at sixteen. If one is to credit their reports,[5] school had little to offer them.

The larger issues of equality of opportunity are clearly not resolvable in the context of this study, or any single study. The determinants of placement in comprehensive public high schools have been presented descriptively, as the operation of selection processes and mechanisms in schools. The results suggest that in American high schools, achievement, as measured by verbal tests, is more important than ascription, as measured by social class and racial background.

A critique of the process of selection requires a

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[5]Kenneth Polk, "Tracking in Public High Schools," Trans-actions, Vol. LXX (October, 1970).

comparative framework. In the present context, two alternative models will be presented which to some degree describe what the composition of the college track would be under varying assumptions. If one were to insist that high schools randomly assigned students to a curriculum, the resulting composition would presumably be random with respect to social class. Such a procedure might insure "equality" of outcomes; it is doubtful the results would be satisfactory for either students or college admissions officers.

Alternatively, we might assume placement is zero-sum within schools, and students are assigned totally on the basis of within school rank on verbal achievement tests. Table 40 presents the results of such an exercise for all students in the forty-eight schools studied. The within school ranks were obtained by ordering students on the basis of scores on the verbal achievement test, and in the case of ties, assigning a higher rank to the student with highest grades. Students were then "assigned" to a curriculum on the basis of the actual number of students in the school reporting themselves in the college track, and the students' rank within the school. The proportions college prep are presented by race and social class background for all students

TABLE 43

PROPORTION COLLEGE PREP BY SOCIAL CLASS AND RACE, FOR NON-FARM TWELFTH GRADE STUDENTS

ACTUAL AND EXPECTED BY WITHIN SCHOOL RANK ON VERBAL ABILITY

	ACTUAL	EXPECTED
WHITE	60.3	62.1
White Collar	72.4	69.9
Blue Collar	45.6	49.9
NON-WHITE	43.1	40.6
White Collar	54.8	44.4
Blue Collar	39.2	32.3
TOTAL	52.6	52.6

in the present sample from non-farm backgrounds. White collar is defined as students reporting their father's occupation as professional, technical, managerial, official, or sales; while blue collar includes skilled and semi-skilled workers, service occupations, laborers and clerical positions.[6] In the present example, it should be noted that only 26.2 per cent of the students would have changed assignment under the conditions imposed. The expected proportions demonstrate that for white students, the children of blue collar workers would be more represented in the college prep curriculum than at present; non-whites, however, would be considerably less represented in either class. If the degree of meritocracy is represented by how closely assignment represents the distribution of tested ability within schools, the outcome for non-white pupils seems questionable in a complete meritocracy. If schools relied more on the results of standardized achievement tests, the outcomes would be considerably less favorable for non-whites than the present selection mechanisms operating within schools. While this is a relatively crude approximation to outcomes obtained by utilizing

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[6]See Chapter III for a more detailed description of the occupational question and codes.

different criteria, the results suggest the problems intrinsic in advocating an alternative to assignment as it exists.

Perhaps schools should maintain a larger college preparatory curriculum than now exists, encompassing all students who aspired to enter college instead of maintaining a selective curricula by ability. By relaxing the constraint that the college prep curriculum should include only the numbers now enrolled, we can compare the outcome of assignment assuming all students aspiring to college were actually placed in the college curriculum. Such a policy has precedent in the open enrollment system begun in certain state universities. Table 44 presents the results of this exercise. The number of cases differ from Table 43 because students who did not respond to the question on aspirations, as well as those aspiring to less than high school completion, were omitted. It should be noted first that the total number of pupils assigned to a college curriculum increased from 54 per cent to 65 per cent. The distribution within social class and racial categories appears more equitable than the present arrangement, although we have still not approached "equality" of outcome. If curriculum placement were structured to provide maximum opportunity

TABLE 44

PROPORTION COLLEGE PREP BY SOCIAL CLASS AND RACE, FOR NON-FARM TWELFTH GRADE STUDENTS

ACTUAL AND EXPECTED IF ALL STUDENTS WHO ASPIRED TO ATTEND COLLEGE WERE ASSIGNED TO THE COLLEGE PREP CURRICULUM

	ACTUAL	EXPECTED
WHITE	60.5	66.2
White Collar	71.3	80.3
Blue Collar	46.0	57.6
NON-WHITE	46.5	59.5
White Collar	52.8	72.1
Blue Collar	42.1	63.8
TOTAL	53.5	64.8

for every high school student who aspired to attend college to be in the college preparatory curriculum, the increase in racial equality would result, while the changes in social class would be only slightly more favorable for the blue collar students. Once more it would seem that changing the criteria of placement would provide somewhat ambiguous results if the object is to maximize the equality of outcome and attempt to force the results to be independent of origins. The relative size of the pool of students desiring to attend college, however, should perhaps be indicative of the inadequacy of most high schools' programs. The present analysis is in substantial agreement with Ramsoy, when she concludes:

> . . . there are both positive and negative sides to the way in which the organization of the high school curriculum works as a mechanism for selecting and training potential college students. The curriculum, and the persons responsible for allocating pupils to various parts of it, works well in selecting the more scholastically able as the recipients of instruction anticipatory of college and university studies. But the scarcity of that instruction relative to the demand for it leads to a reduction in its selective effectiveness. . . . American high schools have succeeded in maintaining an open channel into higher education for a considerable proportion

> of their pupils, but they have done so in part from a position of curricular scarcity and weakness, rather than strength.[7]

In sum, the present chapter has reviewed the findings of this study and discussed the implications of the analysis as both a contribution to our knowledge of the selective mechanisms at work in high schools, and alternative systems one might recommend. It seems clear from the present study that advocating alternative mechanisms might not provide more egalitarian outcomes than presently exist. The educational alternatives to tracking do not seem relatively more advantageous than existing arrangements. While one may criticize the dominant value of achievement, one is relatively impressed by the degree to which it is prevalent in American public high schools.

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[7]Natalie Rogoff Ramsoy, "College Recruitment and High School Curricula," Sociology of Education, XXXVIII, No. 4 (Summer, 1965), 307.

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